



Aalborg Universitet

AALBORG UNIVERSITY  
DENMARK

## Byliv og Byrumskvalitet

*ny viden, metoder og vidensbehov, København, 24. juni 2009, Proceedings*

Harder, Henrik; Sick Nielsen, Thomas; Majgaard Krarup, Jonna

*Publication date:*  
2009

*Document Version*  
Publisher's PDF, also known as Version of record

[Link to publication from Aalborg University](#)

*Citation for published version (APA):*

Harder, H., Sick Nielsen, T., & Majgaard Krarup, J. (Eds.) (2009). *Byliv og Byrumskvalitet: ny viden, metoder og vidensbehov, København, 24. juni 2009, Proceedings*. Institut for Arkitektur og Medieteknologi. A&D Skriftserie No. 33

### General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal -

### Take down policy

If you believe that this document breaches copyright please contact us at [vbn@aub.aau.dk](mailto:vbn@aub.aau.dk) providing details, and we will remove access to the work immediately and investigate your claim.



# urbanism & urban qualities

new data & methodologies

## Byliv og byrumskvalitet

ny viden, metoder og vidensbehov

Copenhagen, June 24th 2009

Proceedings

Aalborg University, Architecture and Design  
University of Copenhagen, Faculty of Life Sciences  
The Royal Danish Academy of Fine Arts, School of Architecture  
Center for Byrumsforskning, Realdania Forskning



Editors: Henrik Harder, Thomas Sick Nielsen, and Jonna Majgaard Krarup



## **Preface**

Henrik Harder, Thomas Sick Nielsen, and Jonna Majgaard Krarup

The interest in urban spaces and their qualities has become stronger in recent years. A substantial volume of projects aims to create attractive urban spaces reasons of Sustainability, Quality of Life and urban vitality. But who actually uses the urban spaces, which urban spaces are used? How do they use them? What characterizes the good urban space? And how and by who is it evaluated? How is a better co-operation between urban space researchers, decision makers and users established? Is it the right urban spaces which receive investments? How can research optimize the basis for decisions?

At the conference "Urbanism & urban qualities – new data & methodologies ", researchers, practitioners and decision makers where invited to present and discuss thoughts and ideas about urban spaces with an emphasis upon new insights gained from the developments in survey technologies and modelling approaches. The conference aim was to provide insight in the current stage of urban space research and practices, address the challenges and opportunities, and finally to assemble Danish researchers and practitioners with a focus on urbanism and development of urban spaces as a possible offset for future.

The conference was held the 24<sup>th</sup> of June 2009 at the The Royal Danish Academy of Fine Arts in Copenhagen. 74 persons- all affiliated with Danish research, design, and planning institutions - were registered as participants. The 20 presentations on the conference presented state-of-the-art results and approaches from Denmark, Sweden, The Netherlands, United Kingdom, Israel and China. The proceedings presents the biographies of the speakers, abstracts, and papers when such are available.

We as organisers of the conferences and editors of the proceedings, wish to thank the foundation RealDania for their financial support which made the conference possible.

**kolofon**

**Konference - DUS:**

Urbanism & urban qualities  
New data and methodologies

**Udgiver:**

Aalborg Universitet  
© Copyright 2009

**Redaktion:**

Henrik Harder, Thomas Sick Nielsen, and Jonna Majgaard Krarup

Arkitektur og Design, institut 19  
Aalborg Universitet  
ISSN nr. 1603-6204  
Skriftserienr. 33

## list of contents

keynote speaker: Anne Vang	06
speaker 01: Jeroen van Schaick	07
speaker 02: Dr. Noam Shoval	16
speaker 03: Henrik Harder	21
speaker 04: Christian Nold	23
speaker 05: Valinka Suenson	24
speaker 06: Daniel Koch	25
speaker 07: Claus Carstensen	31
speaker 08: Anders Albrechtslund & Peter Lauritsen	32
speaker 09: Jonas Sangberg	33
speaker 10: Gitte Marling	38
speaker 11: Birgitte Bundesen Svarre	48
speaker 12: Shelley Smith	49
speaker 13: Stefan van der Spek	50
speaker 14: Chen Yong	55
speaker 15: Kristine Samson & Helle Juul	60
speaker 16: Bo Grönlund	63
speaker 17: Hans Skov-Petersen & Bernhard Snizek	64
speaker 18: Gertrud Jørgensen & Trine Agervig Carstensen	69
speaker 19: Henning Stüben & Dorte Børresen	72
speaker 20: Thomas Sick Nielsen	73
additional material: conference poster & program	74

Keynote speaker

Anne Vang

Cand.scient.pol., Member of the Copenhagen City Council, political spokesperson for the social democratic group

**Short Biography**

Anne Vang is a member of the Copenhagen City Council, where she has been spokesperson for the social democratic group since the last election (2005-2009). She is a member of the Economical Committee as well as the Technical and Environmental Committee. One of her main political focuses is affordable housing and sustainable city development. She is a board member of CPH City and Port Development (2006-2009), Copenhagen Malmö Port (2008-2009), public housing AKB København (2006-2009), Green Cities (2007-2009), Fair Trade Copenhagen (2008-2009), Copenhagen Energy A/S (2007-2009) and DSB S-tog A/S (2007-2009). Anne Vang completed her studies in political science at Copenhagen University in 2008.

speaker 01

**Towards a conceptual framework for time-space visualisations in tracking studies: gaps and ways forward**

Jeroen van Schaick (j.vanschaick@tudelft.nl)

M.Urb. , Delft University of Technology, The Netherlands

[www.bk.tudelft.nl/users/schaick/internet](http://www.bk.tudelft.nl/users/schaick/internet)

**Short Biography**

Jeroen van Schaick is a PhD candidate at the Faculty of Architecture of Delft University of Technology. He is editor of the book 'Urban Networks – Network Urbanism' (2008, Techne Press) and the book 'Urbanism on Track – Application of Tracking Technologies in Urbanism' (2008, IOS Press). His research focuses on the application of knowledge about temporospatial activity patterns of people in the field of urban planning and design.

**Abstract**

A key feature of recent studies of human activity patterns that use tracking technologies such as GPS is the visualisation of temporal and spatial data. However, the choice of the type of visualisation is often primarily data-driven or technology-driven, rather than based on an idea of which images would serve which purposes, the role of imagery in applying knowledge derived from tracking studies, or of the relations between different types of visualisations.

In the context of urban geography, planning and design, the use of multiple media and a range of imagery plays an important role in the understanding of a location or region and in the communication of plans for physical or other interventions in that location or region. Often such mappings or other visual communications are framed through particular conceptual frameworks that express fundamental ideas about the relation between activity behaviour, functional organization of cities and the physical layout and transformation of cities.

This lecture connects these conceptual frameworks to the developing body of knowledge on visualisation in tracking studies and signals gaps in the current trends of data-visualisation. The lecture concludes by setting out a number of possible ways forward.

**Paper**

**1. Introduction**

A key feature of studies on time-space behaviour using tracking technologies such as GPS is their visual output.

Much attention has gone into theorizing and framing visualisation issues in emerging fields of science such as Visual Analytics (Thomas & Cook, 1983; Andrienko et al 2008). However, so far little attention has been paid to the role of tracking visualizations for the generation of new knowledge or ideas (ideation) about how cities function and could function better. In addition, academic tracking studies have, for the large part, paid little attention to communicating tracking data visually to different audiences, within communities of experts in other fields than GIS science or to laymen.

It is particularly important to pay attention to visualisation as 'ideation' tool in an urban planning context. i.e. to generate ideas and knowledge. Although visual languages are prevalent in urban planning, this knowledge field also needs to integrate and synthesise lots of different types of information in the process of plan development and decision making, while a high level of expertise with geographic information cannot always be expected. This problem of application (Klaasen 2004) and/or of implementation (Te Bommelstroet & Bertolini 2008) is gaining new attention in the field of urban planning.



To start thinking about the role that tracking visualisations could play in 'ideation', it is important to understand the principle elements of any tracking visualisation. The most basic elements in tracking data are constructed of location coordinates (x, y, z, t). A series of coordinates collected over time constitutes a track log, which is the most elemental unit of analysis relevant in tracking studies for urban planning, and which corresponds or is processed so to correspond with a 'trip' or 'episode'. Several types of aggregations of track logs, based on different units of analysis (person, place, route, region, flux, etc.) provide the more sophisticated units of analysis that offer a range of visualisation possibilities. Dykes & Mountain (2003), Mountain (2005) and Andrienko et al (2008) provide insight in the range of visualisation possibilities of tracking data as 'spatiotemporal visualization'. A key difference with traditional maps or plans in urban planning is that the temporal dimension is by definition a constituent element of tracking data sets.

Our aim is to provide in this paper starting points to develop a framework that would make it possible to define gaps in current practices of visualisation in tracking studies. It also aims to identify ways forward for research on visualisation of tracking data in the context of urban planning and design. Therefore, the main question in this paper is: *in what ways can tracking visualisations be conceptualised as part of a wider set of visualisations in the context of urban planning and design?* We deal with this question below by drawing together theory on GVIS (geovisualisation), cartography and planning. Rather than providing clear-cut answers, this paper is a first step towards a conceptual framework for *sets of visualisations* in tracking studies in the context of urban planning.

We focus in this paper on the relations between visualisations. By *visualisations* or *maps* we mean in this paper 2-dimensional spatial models, possibly with a virtual third (height) or fourth (time) dimension. The time dimension can also be visualised as a third spatial dimension (Hägerstrand 1970). However, one needs to be aware that in well communicated research, verbal, visual-spatial and numerical information should go hand-in-hand. We build our argumentation from the point of view that *coherent visual stories* are the backbone of this communication and that their coherency depends on the purpose of the communication and on both internal and/or external relations of visualisation sets including tracking visualisations. To understand tracking visualisations as part of a 'story' in the context of urban planning, it is necessary to address the relation between cartography and planning.

## 2. Cartography and planning

Because visualising tracking data is an act of creating maps, the field of cartography might shed some light on the reasons why it is common practice to think about single maps, but not as much about *sets of visualisations*. In particular the 'communication paradigm' in cartography, prevalent in the 1970s, aimed "to produce a single optimal map which presents information clearly, and which is based on known factors of map use" (Dühr 2007: 26-27). Although the communication paradigm has been complemented by semiological and cognitive approaches since then (MacEachern, 1995 (2004)), in general little attention has been paid to *sets of visualisations*. One exception is the work on display-linking in interactive visualisation; Andrienko et al (2008) state that for data - such as movement data - with a complex structure "the use of multiple displays providing different perspectives into the data is important. The displays should be linked so that the information contained in individual views can be integrated into a coherent image of the data as a whole".

Making maps in tracking research can be characterized according to the dimensions of cartography as defined by MacEachern (1995 (2004)): private use versus public use; revealing 'unknowns' vs. presenting 'knowns'; high

human-map interaction vs. low human-map interaction (see fig. 1). Tracking data is very special in that it can be used across the whole spectrum on every dimension relatively easy. This offers an unparalleled potential in comparison to other types of data sources on people's temporo-spatial behaviour patterns. But how to conceptualise the multiple roles tracking data can play through data visualisation and how could a set of visualisations could be as complete as possible in this framework? Our position is that human-map interaction is particularly important in the context of urban planning.

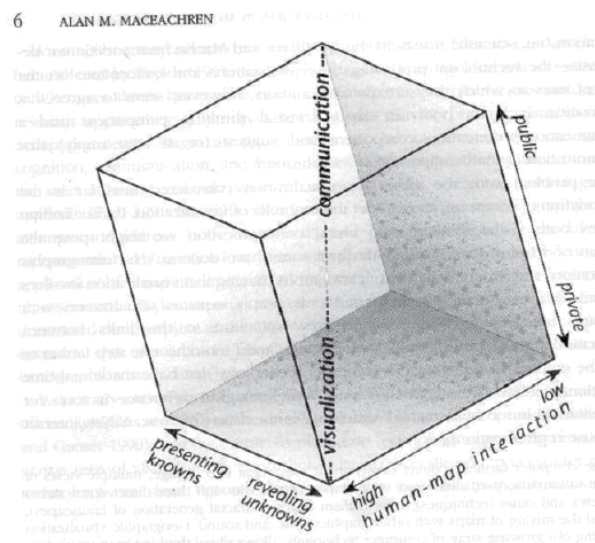


Figure 1. MacEachren's view on the multiple dimensions of cartography.  
Source: MacEachren, 1995 (2004)

It might seem strange to talk about cartography as if it were separate from urban planning or vice versa, since maps, plans and other cartographic representations form an integral part of the visual language used in urban planning. Still, Dühr (2007) finds that "surprisingly perhaps, not much research has been undertaken into the use of cartography in planning". Nor much theorising has taken place about cartography in design-oriented urban planning, although it primarily uses visual language. Rather than as communicating a message, cartography nowadays is seen as a means to construct knowledge (MacEachren, 1995 (2004), Dühr, 2007). And so, the recent shift to a semiotic, representation-oriented and cognitive approach in cartography offers possibilities to reconnect cartography to urban design and planning and its complicated, multiple practices.

Dühr (2007) is one of few that has elaborated on the relation between cartography and planning and, moreover, has paid attention to the implications of theories on 'network space' for cartography in a planning context. Current planning theory struggles to grasp the implications of what has been called the 'rise of the network society' (Castells, 1997; Albrechts & Mandelbaum, 2005; Dupuy, 2008). Dühr (2007) describes that this might have important implications for cartography. Graham and Healy (1999) and Healy (2006) even call for the 'imagination' of network complexity, which implicates developing multiple visions (and visualisations) of time and space that are related to each other. But this is not a simple task. According to Healy it would at least involve a particular scalar consciousness that transcends thinking in terms of 'boundaries'. It would also involve acknowledging 'relational complexity', implying – what she calls – a 'multiplex', 'multivocal' approach to planning (Healy 2006). Then, how to conceptualise the role of tracking visualisation in urban planning as part of a wider range of imagination strategies including several relevant knowledge

fields in planning? Looking at it as a problem of 'geographic information' is one possibility.

Tracking data is a particular type of geographic information (GI). Raper et al (2001) provide a framework for evaluating GI. They distinguish representational and communicative aspects of GI, respectively identifying three levels of evaluation (ontology, system, model) and four levels of evaluation (relevance, commodification, exploration, management). In the context of this paper we argue our point on map *use* rather than map *making*, so we are primarily interested in the communicative aspects of GI.

### 3 Communication aspects of tracking data as geographic information

Two levels of evaluation of the communication component of geographic information (Raper et al 2001) can help to distinguish a number of different possible frameworks for developing sets of maps consisting (at least partially) of tracking visualisations:

- *Exploration*: "to understand the ways in which dynamic visual representations can be used to generate mental representations for 'ideation'"
- *Relevance*: "Relevant information is that which has the greatest 'cognitive impact'". But also "utility" should be taken into account, since visualisations could provide misinformation.

With regard to *exploration* of spatio-temporal data, Andrienko, Andrienko and Galatsky (2003) provide an analytical review of spatio-temporal visualization. Studies in their field – geovisualisation – claim that it is necessary to structure databases such that they inherently possess the capabilities to deal with spatiotemporal data. If they are, it is possible to use them for a whole range of operational tasks for visual exploration (see fig. 2). Visual exploration of data implies a high level of interaction between human and map. Tracking data in particular can be queried in many different ways and might be relevant for many different human actors in urban planning. Related to this interaction-dimension of cartography, Dühr (2007: 30) also defines the following possible interactions: changing the map that is being viewed, switching amongst different maps, superimposing maps, merging maps, but here are more possible interactions to be explored in further study.

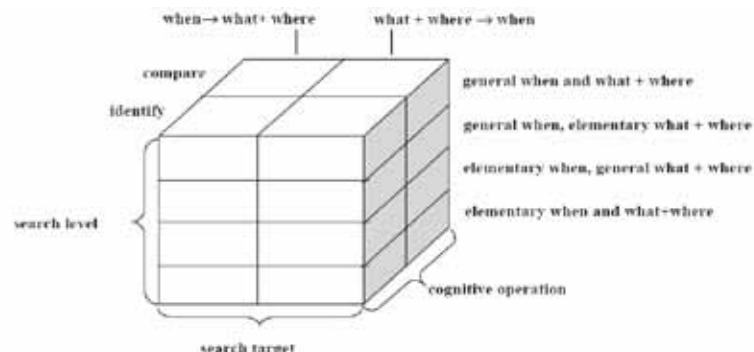


Fig. 1. The operational task typology we use in reviewing geovisualization techniques and tools for spatio-temporal data.

Figure 2. The operational task typology used by Andrienko et al (2003) in reviewing geovisualisation techniques and tools for spatio-temporal data.

With regard to the cognitive-impact component of *relevance*, Raper et al (2001) argue for "a 'human-centred' approach to geovisualisation that ensures that data exploration results in valuable insights rather than those that are technology driven". They suggest Dervin's 'sense making methodology' (Dervin 1983). Suchan and Brewer (2000) suggest a whole range of qualitative

methods for research on map making and map use based on *verbal data*, *direct observation data* and *document data*. In addition, it would be interesting to see how *design-protocol studies* might help in studying the ways in which knowledge from tracking studies in the form of a set of tracking visualisations gets translated into choices during an urban design process (compare Cross 2006).

With regard to the utility component of *relevance* in the context of urban planning and design it is interesting to look at two different ways to conceptualise the role of tracking visualisations in a meaningful set of visualisations. The position of knowledge on patterns of use - as part of a body of knowledge in urbanism - can differ significantly from one framework to another, as figures 3 and 4 show.

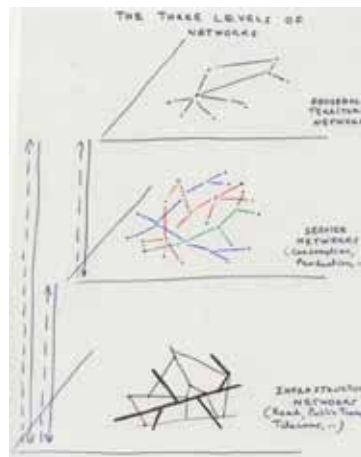


Figure 3. Conceptualising urban systems as networks: from bottom to top infrastructure, service and household territory networks. Note the arrows interlinking the levels; implying that the possible direct effects of *processes* on each level could be the organizing principle of visualisations based on this framework. Source: Dupuy 2008

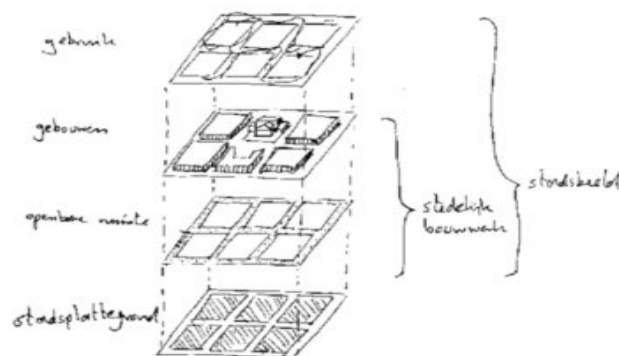


Figure 4. Conceptualising use of public space as connected to different elements of the built environment: from bottom to top urban ground plan, public space, built-up area and use. Note the dotted lines; implying superimposition and overlay of spatial *patterns* as primary organizing principle of sets of visualisations based on this framework.

Source: Sketch by Jan Heeling in Harsema (2000)

#### 4. Towards sets of visualisations

##### 4.1 Different types of sets of visualisations

We distinguish two types of sets of tracking visualisations. On the one hand there are sets of visualisations in which all maps get derived from tracking data, either from one single data set or as a combination of different tracking data sets. On the other hand there are sets of visualisations where only part of the maps get derived from tracking data, while other maps get derived from other, 'exogenous' data, such as spatial layout or demographics.

With regard to the first type, the article by Andrienko, Andrienko and Wrobel (2007) is an interesting example. In their article on visual analytics tools, they show 6 different types of maps, based on two different experimental data sets (one for trucks and one for an individually carried GPS device), of which one figure consists of a subset of four maps:

1. map showing the selection of three trips made by different trucks and the location of the depots
2. a cluster of trips of one car from work to home
3. clustering of trips from work to home clustered according to the routes taken (set of four maps)
4. two clusters of trips following the same route but differing in dynamics
5. summarized representation of trips
6. bar charts on a map showing the minimum and median times spent in different places during the trips of the trucks

However, the authors still did not use of the complete set of possible representations relevant to tracking visualisation, compared to what is possible. Other sets of maps, focusing on continuous field representations can be found, but hardly any studies combine the visualisation of both or more types of visualisation. In another article Andrienko et al (2008) define several different *pattern types* for movement data, and conceptualised the possible significance of these types for solving querying problems. They distinguish different 'patterns' (e.g. constancy, change, fluctuation) and links between patterns for the 'data slices' *individual movement behaviour*, *momentary collective behaviour* and *dynamic collective behaviour*. Andrienko et al (2008) focus on human-computer interaction in which coherency of information is important for visual analytics. But they focus on technical solutions with one eye on the analyst, while ignoring the wider context of an analytical problem. And, if their work would be applied to an urban planning context, their work lacks in providing an understanding of links between 'data slices'. Moreover, they underestimate the importance of linking data and visualisations that are not part of the core data set and which are not integrated in a single technical system.

Along another line of thinking, one would think it logical to create sets of tracking visualisations consisting of multiple scale levels. However, tracking studies distinguish themselves from each other based on scale, rather than focusing on connecting scales (Van Schaick & Van der Spek, 2007). For example, even studies that are in and for themselves interesting, of high quality and relevant to a particular problem miss out on using the maximum range of possibilities in tracking data as visible in MacEachren's scheme (fig. 1). So one can find studies on the level of a station (Millonig 2007), of historical city centres (Van der Spek et al 2008), of a town (De Bois & De Haan 2009), of an urban region (Ratti et al 2006) and on a national scale (Ahas et al 2007), but none of these studies uses multilevel visualisation to build a 'story' and let themselves be bound to the borders defined by technology, logistics or administration or a combination of these.

With regard to the second type of sets – those connecting tracking visualisations with other types – not many examples can be found. Again, not

one example uses the full potential in light of cartographic theory. In this case this can be set against the possibilities with regard to visualisations at multiple scales and visualisation in light of multiple types of urban systems. The example of Ratti et al (2006) clarifies that the difficulty to derive multiple meaningful interpretations from the same tracking data set might lie in the very method of data collection. Namely, data collection from mobile phone data makes it very difficult to distil individual movement patterns (because of accuracy and privacy issues).

The example of Van der Spek et al (2008) is interesting because it communicates a visual story around a concrete urban planning problem, i.e. the vitality of historical urban centres. Since that study focuses on pedestrian patterns and uses GPS as tracking device, they have been able to extract very detailed information from different relevant viewpoints for urban planning within the tracking data itself. Moreover, because their exogenous information from questionnaires and spatial analysis is also translated into maps, they have been able to develop a coherent set of visualisations that builds a 'story' around their problem.

#### 4.2 Gaps and ways forward

This paper has shown that there is a developing body of knowledge on making maps based on tracking data, while the use of these maps, other than by the people making them, gets much less attention. We suggest that future research also focuses on qualitative approaches to research on application of tracking visualisation. Such research could explore what constitutes *meaningful sets of data representations*, for which purposes they are relevant and in which context of application. Since this paper showed that there is a significant gap between the field of cartography and the field of planning, such research could focus on bridging this gap. We can identify at least four dimensions that are key to developing richer sets of visualisations in that light: (1) multilevel thinking; (2) thinking in terms of multiple urban systems, e.g. as in figures 3 and 4; (3) using different types of databases; and (4) the interrelation between different data sets.

This paper also shows that - although most researchers expect their work on visualising tracking data to have a certain direct relevance to a field of application such as planning - most innovations are still technologically driven, rather than driven by a certain context of application in which sets of maps could be developed. We call for more context-driven innovation, which means that researchers need to bridge the gap between academic research and practical application in local urban planning contexts.

The need for specialization and the establishment of a discipline of tracking studies is currently emerging; while we would argue that it is, especially in these early days of the field, necessary to simultaneously integrate its body of knowledge into existing knowledge domains. Biology and ecology seem to well ahead again as with the first application of tracking technologies when they became available.

#### **5. Acknowledgements**

This research project has been made possible by the Delft Centre for Sustainable Urban Areas

#### **6. References**

Ahas, R., Aasa, A., Mark, U., Pae, K., Kull, T. Seasonal Tourism Spaces in Estonia: Case study with mobile positioning data, *Tourism Management* 2007, 28(3), 898-910.

Albrechts, L. & Mandelbaum, S. (Eds) *The Network Society: A New Context for*



*Planning*. London: Routledge, 2005.

Andrienko, N.V., Andrienko, G.L. & Gatalsky, P. Exploratory spatio-temporal visualization: an analytical review. *J. Vis. Lang. Comput. (VLC)* 2003, 14(6):503-541

Andrienko, G.L., Andrienko, N.V., Kopanakis, I., Ligtenberg, A. and Wrobel, S., Visual Analytics Methods for Movement Data. In: Giannotti, F. and Pedreschi, D. (Eds) *Mobility, Data Mining and Privacy - Geographic Knowledge Discovery*. Berlin: Springer Verlag, 2008, pp.375-410

Andrienko, G.L., Andrienko, N.V., Wrobel, S. Visual analytics tools for analysis of movement data. *SIGKDD Explorations (SIGKDD)* 2007, 9(2):38-46

Castells, M. *The rise of the network society (the information age; economy, society and culture, volume 1)*. Oxford: Blackwell, 1997.

Cross, N *Designerly Ways of Knowing*. London: Springer, 2006.

De Bois, P. and Haan, R. de, *GPS experiment in Almere*, research report, Almere/Delft: INTI/Delft Unievrstity of Technology, to be published 2009.

Dervin, B. *An overview of sense-making research: Concepts, methods and results to date*. Seattle: School of Communications, University of Washington, 1983.

Dühr, S. *The visual language of spatial planning – exploring cartographic representations for spatial planning in Europe*. New York: Routledge, 2007.

Dupuy, G., *Urban Networks – Network Urbanism*. Amsterdam: Technepress, 2008

Dykes, J. and D.M. Mountain, Seeking Structure in Records of Spatio-Temporal Behaviour: Visualization Issues, Efforts and Applications. *Computational Statistics and Data Analysis* 2003, 43(4): 581-603

Graham, S. and Healy, P. Relational concepts of space and place: Issues for Planning Theory and Practice. *European Planning Studies*, 1999, 7(5), 623-646.

Hagerstrand, T. What about people in regional science? *Papers Regional Science Association*, 24, 1970, pp.7-21

Healy, P. Relational complexity and the imaginative power of strategic spatial planning. *European Planning Studies* 2006,14: 525-546

Harsema, H., Tussen functionele ordening en formeel ontwerp; In: Maarten Ettema et al. (eds), *De Kern van de Stedebouw* in het perspectief van de 21ste eeuw, *Blauwe Kamer*, 2000, Katern 5

MacEachern, *How maps work – representation, visualization and design*. New York: The Guilford Press, 1995 (2004 paperback edition)

Millonig A., Schechtner K. *Application of Tracking-based Research in the Development of Mobile Pedestrian Navigation Systems*. Invited Talk, Expert Meeting "Urbanism On Track", Jan. 18, 2007, Delft, The Netherlands.

Mountain, D.M. *Exploring mobile trajectories: an investigation of individual spatial behaviour and geographic filters for information retrieval*, PhD thesis; London: Department of Information Science, City University London, 2005.

Raper, J, Dykes, J, Wood, J, Mountain, D, Krause, A and Rhind, D A framework for evaluating geographical information. *Journal of Information Science* 2001, 28(1): 39-50

Ratti, C., Pulselli, R.M., Williams, S., Frenchman, D. Mobile Landscapes: using location data from cell phones for urban analysis, *Environment and Planning B: Planning and Design* 2006, 33, 727-748.

Suchan T.A., Brewer C.,A. Qualitative Methods for Research on Mapmaking and Map Use. *Professional Geographer* 2000, 52, 1, pp. 145-154

Te Brömmelstroet, M.C.G. & Bertolini, L. Developing Land use and Transport PSS: Meaningful information through a dialogue between modelers and

planners, *Transport Policy* 2008, 15 (4): 251-259

Thomas, J. and Cook, K.. *Illuminating the Path. The Research and Development Agenda for*

*Visual Analytics*. IEEE Computer Society, 1983.

Van der Spek, S.C., Hoeven, van der F.D., Smit, M.G.J., Eds. *Street Level Desires*. Delft: Delft University of Technology / Urbanism, 2008

Van Schaick, J. and Van der Spek, S.C., Application of Tracking Technologies in Spatial Planning Processes: An Exploration of Possibilities. In: Schrenk M., Popovich, V.V.; Benedikt, J., Eds, *Conference Proceedings 12th International Conference on Urban Planning, Regional Development and Information Society*, Vienna, May 20-24, 2007. CORP: Vienna, Austria, pp. 89-100.



speaker 02

**Elderly People and the City: An investigation with GPS methodology**

Dr. Noam Shoval (noamshoval@huji.ac.il)

Senior Lecturer, Department of Geography, The Hebrew University of Jerusalem, Israel

**Short Biography**

Dr. Noam Shoval is a senior lecturer at the department of geography of the Hebrew University of Jerusalem. He completed his Ph.D. at HU (2000) under the supervision of the late Prof. Arie Shachar and conducted post-doctoral research with Prof. Chris Hamnett at the department of geography, King's College, University of London (2000-2001). During the last year (2007-2008) he was an Alexander von Humboldt Research fellow at the department of geography of the University of Heidelberg (Germany).

**Abstract**

In the context of ageing populations geographical outdoor mobility can be regarded as a major enabling factor for well-being and quality of life. However, we can often observe that elderly people tend to reduce their geographical mobility in terms of action range and frequency as a result of various constraints. The assessment of outdoor mobility usually relies on subjective reports that the participant or his family members. The "SenTra" project, an Israeli-German cooperation, measures the outdoor activities of elderly people by taking advantage of a combination of tracking technologies in an interdisciplinary project involving researchers from Geography, Social Work, Gerontology, Psychology, and Medicine. The focus is to assess activity patterns of urban living with various levels of cognitive status over a period of one month during three years. The explicit consideration of ethical aspects involved in the use of tracking technology is a substantial component throughout the project. Main objectives are to assess differences in daily outdoor activity patterns of participants with different levels of cognitive functioning, and to analyze how participant's activity patterns are related to their own well-being and that of their families.

**Paper**

Travel behavior of elderly people gained more and more attention in recent years due to the aging of Western societies and the necessity to anticipate and plan for the needs of the growing elderly population (Paez et al. 2007). Previous research has found aging to be a constraint on spatial activity (Carp 1970). After retiring, elderly people find themselves with less time constraints than people who must report to work. At the same time, their needs are different from those of younger people. Thus, elderly people must adapt their spatial activity so that it both helps serve their physical and emotional needs and fits into any limitations in mobility they encounter.

Out-of-home mobility is critical to numerous aspects of elderly people's quality of life (Mollenkopf et al. 2005). Outdoor mobility is a prerequisite for partaking in social, commercial, and cultural activities in today's society. Studies have found that people who are unable to move about freely as a result of physical constraints and people who have cannot move freely due to limitations imposed on them by their surroundings have a lower quality of life (Breeze et al. 2005; Gabriel and Bowling 2004).

Out-of-home mobility of elderly people is an important research topic and of high relevance for implementing practical solutions in the aging society of the developed world. What, then, are the methods used to measure this phenomenon? Until recently, the most common method for gathering information on human time-space patterns was the time-space diary. This

method provides a systematic record of the way in which individuals occupy their time in space over a limited period, be it a few hours, a day, or a week (Anderson 1971).

While time-space diaries have been used to great effect (see, for example, Janelle et al. 1988), they do have several disadvantages as research tools. In particular, time-space diaries require the subjects' active involvement in the process of data collection as they must record, in detail and at length, their activities throughout the entire experiment (Thornton et al. 1997). Since participants often fail to record their actions faithfully, the data obtained are often of questionable credibility (Szalai 1972; Murakami and Wagner 1999). As a result, time-space diaries are used to collect data on time periods up to one week. Some notable examples of longer periods of data collection exist (Hanson 1977; Axhausen et al. 2002), but these are exceptions to the rule. In addition, data regarding the pace of walking, number of stops, and exact locations of stops and places of activity are not recorded in travel diaries. These pieces of information are crucial for fully understanding mobility and are especially interesting when studying a population that might be experiencing physical difficulty when moving about.

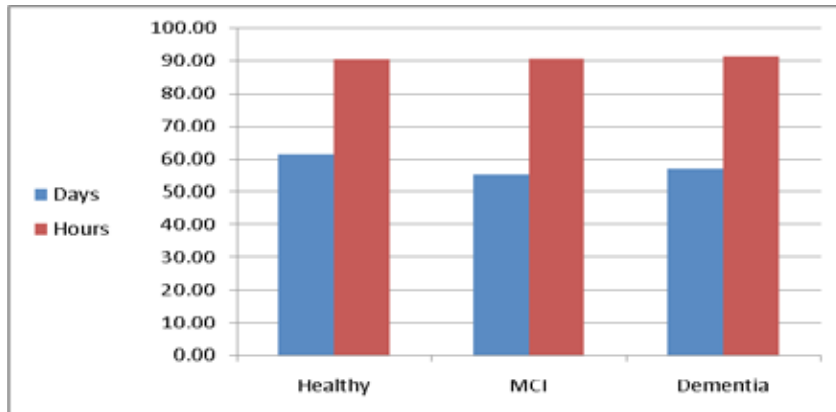
Global Positioning System (GPS) devices offer researchers the opportunity for continuous and intensive high-resolution data collection in time (seconds) and space (meters) for long periods of time. This was never possible before in spatial research. GPS and other tracking technologies are now used in a wide variety of fields such as environmental health (Elgethun et al. 2003); the medical field, in such subjects as Alzheimer's disease (Miskelly 2004; Shoval et al. 2008), physiology (Terrier and Schutz 2005), and cardiology (Le Faucheur et al. 2008); and as a tool to assist in navigation for visually impaired and blind pedestrians (Golledge et al. 1991; Golledge et al. 1998; Maeda et al. 2002). However, to date most of the research conducted based on material gathered by advanced technologies has been in the field of transportation studies, usually in regard to tracking the spatial paths of motor vehicles (see, for example, Zito et al. 1995; Quiroga and Bullock 1998; Wolf et al. 2001; Bohte and Maat 2009). The collection of data and study of the spatial activity of pedestrians using advanced technologies have been less common.

This paper is one outcome of the "SenTra" project, which is an Israeli-German cooperative endeavor that measures the outdoor activities of elderly people in the Tel-Aviv and Rhine-Neckar Metropolitan regions by taking advantage of advanced tracking technologies. This interdisciplinary project involves researchers from geography, social work, gerontology, psychology, and medicine.

In this paper we will present preliminary findings regarding the timing and distance of the out-of-home mobility of 41 elderly participants, taken from the first phase of the Israeli component of the SenTra project, which included demented, mildly cognitively impaired, and healthy men and women. The participants' locations were obtained 24 hours a day at a sampling rate of 10 seconds for 28 consecutive days, using a location kit that combined global positioning system (GPS) with Radio Frequency Identification (RFID) technology. The high-resolution spatial and temporal data obtained enabled the presentation of the differences in the timing and distance of daily outdoor mobility patterns of participants with different levels of cognitive functioning.

Forty-one elderly participants from three cognitive groups were tracked for an average of 27.4 days or 673.2 hours. The participants had an average of 88.4% of

Figure 1: Average percentage of valid days and hours

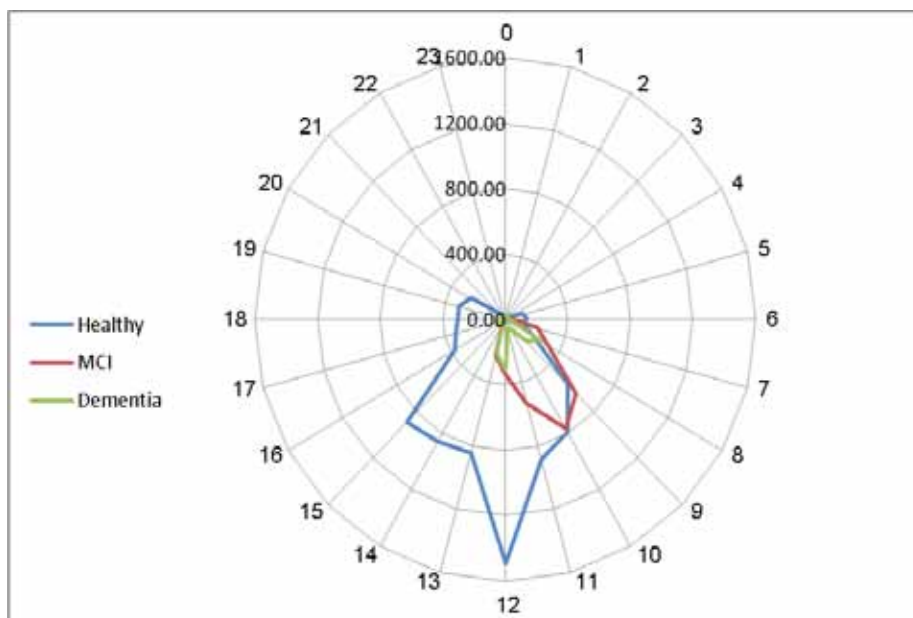


valid hours and an average 15.1 days that were fully valid, i.e., completed with not even one hour missing. All participants had similar percentages of valid hours, but those with no cognitive impairments had slightly higher rates of valid days (Figure 1).

Participants with cognitive impairment were older than healthy controls; however, there was no significant difference by gender.

The article presents the differences between the three study groups in the distance from home over a cycle of 24 hours. These preliminary results show that PWD remain closer to home than do people diagnosed with MCI and people from the healthy group. Comparing the people diagnosed with MCI to the healthy control groups shows that the people in the control group are active at greater distances from their homes and until later at night. These findings present a pattern in the decline of the spatial activity of people with cognitive impairment that is part of the general decline in out-of-home mobility. The findings also reveal that the decline in out-of-home activity does not only present itself as less time spent out of home but as a change in the location of the activities as well.

Figure 2: Average of median distance from home for three cognitive groups



## References

Anderson, J. 1971. Space-time budgets and activity studies in urban geography and planning. *Environment and Planning* 3 (4): 353-68.

Axhausen, K. W., A. Zimmermann, S. Schönfelder, G. Rindsfuser and T. Haupt. 2002. Observing the rhythms of daily life: A six-week travel diary. *Transportation* 29: 95-124.

Blackman, T., Mitchell, L., Burton, E., Jenks, M., Parsons, M., Raman, S. & Williams, K. 2003. The accessibility of public spaces for people with dementia: A new priority for the 'open city'. *Disability & Society*, 18(3), 357-371.

Bohte Wendy, Kees Maat. Deriving and validating trip purposes and travel modes for multi-day GPS-based travel surveys: A large-scale application in the Netherlands. *Transportation Research Part C: Emerging Technologies* 17 (3): 285-297.

Breeze, E., D. A. Jones, P. Wilkinson, C. J. Bulpitt, C. Grundy, A. M. Latif, and A. E. Fletcher. 2005. Area deprivation, social class, and quality of life among people aged 75 years and over in Britain, *International Journal of Epidemiology*, 34(2):276-283.

Carp, F. M. 1970. The Mobility of Retired People. *Transportation and Aging*. Edited by E. J. Can-tilli and J. Schmelzer. Washington, D.C.: U.S. Government Printing Office.

Elgethun, K., Fenske, R. A., Yost, M. G. & Palcisko, G. J. 2003. Time-location analysis for exposure assessment studies of children using a novel global positioning system instrument. *Environmental Health Perspectives*, 111, 115-122.

Gabriel, Z., and A. Bowling. 2004. Quality of life from the perspectives of older people. *Ageing & Society* 24:675-691.

Hanson, P. 1977. The Activity Patterns of Elderly Households. *Geografiska Annaler*, 59:109-124.

Janelle, D. G., Goodchild, M. F. and Klinkenberg, K. 1988. Space-time diaries and travel characteristics for different levels of respondent aggregation. *Environment and Planning A*, 20 (7): 891-906.

Le Faucheur, A., Abraham, P., Jaquinandi, V., Bouyé, P., Saumet, J. L., and Noury-Desvaux, B. 2008. Measurement of Walking Distance and Speed in Patients With Peripheral Arterial Disease. *Circulation: Journal of the American Heart Association*, 117: 897-904.

Maeda, Yoshinobu, Tano Eiichi, Makino Hideo, Konishi Takashi and Ishii Ikuo. 2002. Evaluation of a GPS-based guidance system for visually impaired pedestrians, *Proceedings of the Technology and Persons with Disabilities Conference 2002*.

Miskelly, F. 2004. A novel system of electronic tagging in patients with dementia and wandering. *Age and Ageing*, 33(3), 304-306.

Mollenkopf, H., Baas, S., Marcellini, F., Oswald, F., Ruoppila, I., Széman, Z., Tacken, M. & Wahl, H.-M. 2005. A new concept of out-of-home mobility. In H. Mollenkopf, F. Marcellini, I. Ruoppila, Z. Széman & M. Tacken (Eds.). *Enhancing mobility in later life. Personal coping, environmental resources and technical support. The out-of-home mobility of older adults in urban and rural regions of five European countries* (pp. 257-277). Amsterdam: IOS Press.

Murakami E, Wagner DP. 1999. Can using global positioning system (GPS) improve trip reporting? *Transportation Research*, 7C:149-165. .

Paez, A., D. Scott, D. Potoglou, P. Kanaroglou, and K. B. Newbold. 2007. Elderly Mobility: Demographic and Spatial Analysis of Trip Making in the Hamilton CMA, Canada, *Urban Studies*, 44(1)123-146.

Quiroga, C.A. and D. Bullock, 1998. Travel time studies with global positioning and geographic information systems: an integrated methodology *Transportation Research*, 6C (1-2), 101-127.

Shoval, N., G. Auslander, T. Freytag, R. Landau, F. Oswald, U. Seidl, H.-W. Wahl, S. Werner, and J. Heinik. 2008. The use of advanced tracking technologies for the analysis of mobility in Alzheimer's disease and related cognitive diseases. *BMC Geriatrics* 8:7.

Szalai, Alexander (ed.) 1972. *The use of time: Daily activities of urban and suburban populations in twelve countries*. The Hague and Paris: Mouton.

Terrier, P., and Schutz, Y. 2005. How useful is satellite positioning system (GPS) to track gait parameters? A review. *Journal of NeuroEngineering and Rehabilitation*. 2:28.

Thornton, P. R., A. M. Williams and G. Shaw. 1997. Revisiting time-space diaries: an exploratory case study of tourist behaviour in Cornwall, England *Environment and Planning A*, 29 (10): 1847-1867.

Wolf, Jean, Randall Guensler, and William, H. Bachman. 2001. Elimination of the Travel Diary: Experiment to Derive Trip Purpose from GPS Travel Data, Paper presented at the 80<sup>th</sup> annual meeting of the Transportation Research Board, January 7-11, 2001, Washington, D.C.

Zito, R., D'este, G. & Taylor, M. A. P. 1995. Global positioning in the time domain: How useful a tool for intelligent vehicle-highway systems?. *Transportation Research*, 3C, 193-209.

speaker 03

**Life in Urban space - GPS/GIS based analyses of human behavior – pitfalls and possibilities the Aalborg Case**

Henrik Harder (hhar@aod.aau.dk) - webpage <http://www.detmangfoldigebyum.dk/uk.php>

Associate professor, Department of Architecture and Design, Aalborg University, Denmark

**Short Biography**

Henrik Harder is an Associate Professor, Ph.D. in Architecture, Planning and Transport at The Institute of Architecture & Design of the Aalborg University (AAU). He completed his Ph.D. at AAU (2002) under supervision of Associate Professor Harry Lahrmann. Henrik Harder worked as an architect in Copenhagen in Denmark (1990 – 1995) and at Aalborg University (AAU) from 1995. At the moment Henrik Harder's research is based on analyses of human behaviors and activities in physical and virtual environments in space and time in urban environments and he uses a cross-disciplinary research approach which will allow a broad discussion of relations and dynamics between humans, spaces, and flows.

**Abstract**

Taking a point of departure in a GPS based survey and registration of 243 (respondents) young people's behavior and activities in a 7 days period in spring and autumn 2008 in Aalborg pitfalls and possibilities using GPS surveys in an urban environment is described in this paper. The paper also focus on some of the results connected to the young people's actual use of urban spaces/areas and the results from an urban attractiveness survey where 145 (respondents) of the young people from the overall survey participated. The questions in the attractiveness survey are focused on what parameters, in young people's opinion, that makes an urban space attractive / unattractive.

**References:**

Glud, LN, Harder, H, Horst, NR, Simonsen, AK, Tradisauskas, N, Skov, H, Lyseen, AK, Bro, P, Henriksen, S & Poulsen, JS 2009, *GPS baseret kortlægning af zoo gæsters brug af Aalborg Zoologiske Have, efteråret 2008, Institut for Arkitektur og Design, Aalborg Universitet (Department of Architecture and Design Working Paper Series; 26).*

Harder, H & Nielsen, TAS 2007, 'Support for spatial interventions and contributions to the planning process based on tracking and mobile technologies: position paper', *I Urbanism on Track: papers and presentations, Delft University of Technology, Department of Urbanism, Delft, s. 30-32.*

Harder H. 2008. *Det mangfoldige byrum: aalborg 2008 - byrumsundersøgelse\_del 2.* Aalborg: Aalborg Universitet. 150 s. (Skriftserie for A & D; 19).

Harder H, Bro P, Henriksen S, Hamann RC. 2008. *Det mangfoldige byrum: aalborg 2008 - byrumsundersøgelse\_del 1.* Aalborg: Aalborg Universitet. 41 s. (A&D skriftserie; 18).  
Harder, H, Nielsen, TAS, Bro, P & Tradisauskas, N 2008, 'Experiences from GPS tracking of visitors in Public Parks in Denmark based on GPS technologies', *I van Schaick, J & van der Spek, S (red.), Urbanism on Track. Application of Tracking Technologies in Urbanism, IOS Press, Amsterdam, s. 65-78 (Research in Urbanism Series).*

Hovgesen, HH, Nielsen, TAS & Kappel, M 2005, 'Visualisering af Danmarks erhvervsgeografi vha. kvadratnetsklynger: Forskningsprojektet ATLAS', *I Program for Kortdage 2005, Geoforum Danmark, Frederiksberg.*

Hovgesen, HH, Nielsen, TAS & Larsen, TK 2004, 'Fra fysisk til virtuel udvikling af byen: eller fra byens eksplosion til byens implosion', *Byplan, vol. 56, nr. 3, s. 144-147.*

Hovgesen, HH, Nielsen, TAS, Lassen, C & Godtved, S 2005, 'The potential for the exploration of activity patterns in the urban landscape with GPS-positioning and electronic activity diaries', *I International Conference for integrating Urban Knowledge & Practice: Conference Proceedings, Life in the Urban Landscape, Göteborg, Sverige.*



Jensen, AS, Bro, P & Harder, H 2009, Identification and cleansing of scatter in GPS-surveys in urban environments,.

Kjærsgaard, R, Hovgesen, HH, Nielsen, TAS & Lassen, C 2006, 'Unges mobilitets- og aktivitetsmønstre: undersøgelse baseret på GPS registrering og web-dagbog', I Trafikdage på Aalborg Universitet [Online], Trafikforskningsgruppen, Aalborg Universitet, Aalborg.

Lassen, C, Jensen, E, Hovgesen, HH & Nielsen, TAS 2004, 'Mobilitet, Komplexitet og dynamiske web-spørgeskemaer', I Trafikdage på Aalborg Universitet, Aalborg Universitet (Trafikdage på Aalborg Universitet (Online)).

Nielsen, TAS & Harder, H 2008, 'Exploratory mapping of commuter flows in England and Wales', Journal of Transport Geography, vol. 16, nr. 2, s. 90-99.

Nielsen, TAS & Harder, H 2008, 'Trends in interactions between cities and surroundings.: Analysis of commute patterns around large European and American cities.', I Atkinson, R & Rossignolo, C (red.), Spatial and Urban Planning in Europe: Governance, Territory and Polycentricity in the Re-creation of the European City.. Governance Territory & Polycentricity, Techne Press, Amsterdam, The Netherlands, s. 217-236.

Nielsen, TAS & Hovgesen, HH 2004, GPS in Pedestrian and Spatial Behaviour Surveys, Paper fremlagt ved International Conference on Walking in the 21st Century, Copenhagen, Danmark. 9. - 11. juni.

Nielsen, TAS & Hovgesen, HH 2004, 'GPS in Travel and Activity Surveys', I Trafikdage på Aalborg Universitet, Aalborg Universitet (Trafikdage på Aalborg Universitet [Online]).

Nielsen, TAS & Hovgesen, HH 2005, 'GIS-baserede kortlægninger af interaktionsdata', I Program for Kortdage 2005, Geoforum Danmark, Frederiksberg.

Nielsen, TAS & Hovgesen, HH 2005, 'Urban fields in the making: new evidence form a Danish context', Tijdschrift voor Economische en Sociale Geografie, vol. 96, nr. 5, s. 515-528.

Nielsen, TAS, Hovgesen, HH & Lassen, C 2005, 'Exploratory mapping of commuter flows in England and Wales', I Abstracts and Programme Book, Royal Geographical Society with IBG.

Nielsen, TAS, Harder, H, Bro, P & Simonsen, AK 2008, 'Brugerundersøgelser med GPS: eksempler fra parkundersøgelser i Aalborg', Geoforum Perspektiv, nr. 14, s. 5-10.

Nold, C, Jensen, OB & Harder, H 2008, 'Mapping the City: reflections on urban mapping methodologies from GPS to Community Dialogue', Institut for Arkitektur og Design, Aalborg Universitet, Aalborg (Department of Architecture and Design Working Paper Series; 25).

Rendtlew Horst, N, Knørr Lyseen, A, Skov, H, Harder, H & Bro, P 2007, Borgerundersøgelse – Kildeparken, august 2007: Kildeparken, Aalborg Universitet, Danmark (HelPark - DUS; Skriftserie 14).

Rendtlew Horst, N, Knørr Lyseen, A, Skov, H, Harder, H & Bro, P 2007, Borgerundersøgelse – Mølleparken, august 2007: Mølleparken, Aalborg Universitet, Aalborg.

Rendtlew Horst, N, Knørr Lyseen, A, Skov, H, Harder, H & Bro, P 2007, Borgerundersøgelse – Skanseparken, august 2007: Skanseparken, Aalborg Universitet, Aalborg (HelPark - DUS; Skriftserie 13).

Rendtlew Horst, N, Knørr Lyseen, A, Skov, H, Harder, H & Bro, P 2007, Borgerundersøgelse – Søheltens Have, august 2007: Søheltens Have, Aalborg Universitet, Aalborg (HelPark - DUS; Skriftserie 12).

Simonsen, AK, Bro, P & Harder, H 2007, The precision of the Lommy Phoenix: Tests in various urban environments.

Simonsen, AK, Tradisauskas, N, Harder, H & Bro, P 2008, Udfordringer i forbindelse med GPS-støttede spørgeskemaundersøgelser, Paper fremlagt ved Kortdage, Kolding, Danmark. 27. - 29. oktober.

speaker 04

**Design for Responsive Communities**

Christian Nold (christian@softhook.com)

**Short Biography**

Christian Nold is an artist, designer and educator working to develop new participatory models for communal representation. In 2001 he wrote the well received book 'Mobile Vulgus', which examined the history of the political crowd and which set the tone for his research into participatory mapping. Since graduating from the Royal College of Art in 2004, Christian has led a number of large scale participatory projects and worked with a team on diverse academic research projects. In particular his 'Bio Mapping' project has received large amounts of international publicity and been staged in 16 different countries and over 1500 people have taken part in workshops and exhibitions. These participatory projects have a strong pedagogical basis and grew out of Christian's formal university teaching. He is currently based at the Bartlett, University College London.

**Abstract**

A new diverse generation of individuals and communities with civic, political and ecological agendas are looking to get involved in reshaping their own local contexts. What is needed is a range of appropriate technologies for local and intra-local settings; new tools, methodologies and provocations that create, foster and challenge these emerging responsive communities. This presentation will show a range of the innovative tools and methodologies for participatory mapping that start from the sensory experience of the single body and then move to the communal and political. There will also be a discussion of the resulting projects and evaluation findings.

<http://sf.biomapping.net/>



speaker 05

**RFiD methods for indoor tracking research: Challenges, advantages and inconveniences**

Valinka Suenson (vsue@aod.aau.dk )

Architecture & Design, Aalborg University, Denmark

<http://personprofil.aau.dk/Profil/117181>

**Short Biography**

Valinka Suenson is a 1st year Ph.D student at the faculty of Architecture and Design at Aalborg University. At present her field of research is tracking opportunities in indoor spaces. How can we track movement patterns? And what can we say about the data we get from tracking indoor movement? Previously she has worked as an assistant at SBI evaluated the urban regeneration program on Nørrebro (Copenhagen) and Vollsmose (Odense). Her current research focuses on the interplay within movement, behavior, architecture and social technologies.

**Abstract**

Several studies today use GPS systems to register various movement patterns from car traffic to visitors in the ZOO. However in an indoor setting a GPS system cannot work as the satellite signal is not able to penetrate a building. In this case the RFID system is more beneficial as the signal uses radio activity which is independent of the satellite. Additionally the RFID system can be much more accurate, as the signals accuracy can be down to minimum two meters. A small scale measurement that often is necessary for tracking indoor movement.

By using the RFID system the aim of the Ph.D project is to integrate new technologies when evaluating how buildings are being used. More precisely the Ph.D focuses on constructions in the field of sport, culture and leisure made with contributions from The Danish Foundation for Culture and Sport Facilities (Lokale og Anlægsfonden).

The aim of the method is to show present online and in real time the movement patterns inside a building. With indoor tracking in real time, it is possible to register the difference from where people say they want to stay, and where they actually are when moving around a building.

This lecture will try to clarify some of the challenges that arises when working with the RFID system for indoor tracking. As a case a 5.090 m<sup>2</sup> library in Hjørring is presented. The considerations connected to make a representative survey of the movement and activity/flow patterns inside Hjørring Library will be discussed.

speaker 06

## **ANALYSING ARCHITECTURAL CONFIGURATION**

### **Spatial heterogeneity as form, function, and communication**

Daniel Koch, dk@arch.kth.se

Ph.D., Researcher, Teacher; KTH School of Architecture

Architect, Analyst; Patchwork Architecture Laboratory

### **Biography**

Daniel Koch is a Ph.D. from the KTH School of Architecture now active as researcher and teacher there, and as designing architect at Patchwork Architecture Laboratory (co-founded in 2007). In 2004 he published *Spatial Systems as Producers of Meaning: The Idea of Knowledge in Three Public Libraries*, on three major Swedish libraries, and in 2007 he published his Ph.D. *Structuring Fashion: Department Stores as Situating Spatial Practice*, published by Axl Books. Since then he has done research continuing this study and on small retail or community centres. Daniel Koch was also member of the Organising Committee of the 7th International Space Syntax Symposium, and editor of the proceedings. His research focuses on developing the critical analysis potentials of spatial analysis (including space syntax) in relation to ideals, values, and representation.

### **PRELIMINARY Abstract**

Spatial and material form, the tools and modes of architects, participate in shaping our lives in many ways which are not determinate but strongly influential. One of the ways in which it does this is by spatial configuration - that is, the setup of relations between spaces - which responds to and describes social relations as well as potentials, possibilities, restrictions, and suggestions. This both through practical and communicative means, and in a great many ways. Research at KTH tries to focus more specifically at these components of the physical environment, and some intriguing results have been produced both when it comes to buildings and urban environments. Critical for these findings have been the involvement of different theories and methods that complement one another, and the development of new models of analysis. This presentation aims to briefly present some of these models and results.

**Paper:** An Outline of Architectural Configuration, Background to the Presentation at the Urban Qualities Conference.

I

It can be argued that one of the greater tasks for a move towards a sustainable development, economically, socially, and environmentally, is that of better understanding the role of space in society. In many ways space defines opportunities and problems, defining what is possible, what is plausible, what is desirable, and what is achievable. In terms of built space, it offers solutions and problems alike, and great challenges await for to handle an urbanised and globalised world and give it physical form. For these challenges, knowledge of space and event, form and action, is pivotal and also, it can be argued, lacking (see e.g. Massey 2005). This knowledge, it can further be argued, needs to be developed both in research and practice, each providing input for the other, or through one another. This as architectural space is material and social, and these conditions will always form preconditions for planning and design as well as research (Anderson 2000).

The challenge of understanding space as form, action, and event requires a truly multidisciplinary effort, both in combined projects and in parallel research and development. What follows is an outline of *one* approach investigating this problem, focusing on its theoretical and ontological basis rather than specific findings. An approach that has important implications for architectural practice, and which as method has successfully been used in urban planning and design projects.

## II

First, I would point to a claim made by Foucault (1997, 351), namely that that space, as such, is heterogeneous. This generates problems for both the analysis of places in themselves as for the understanding of space. It is a claim with a multitude of possible interpretations, but will here be interpreted in a very specific sense that deviates from the arguably more common. In as far as heterogeneity is considered, it is often interpreted as *social* heterogeneity, like the fact that space appears different depending on event or on who is participating or perceiving. Another important interpretation tends to come in the background: that space is inherently heterogeneous. One can make the argument this is especially true for architectural space, where what is meant with architectural space is space as a result of built, concrete, form. That is, space as delimited by material boundaries of different kinds which are of both functional and communicative character and purpose.

Now, if space 'in itself' is heterogeneous, it also has a differentiating effect by how it produces situations, positions, and relations: heterogeneous space is a space that is relational in its character and as such also hierarchical. This is not to say that there are inherently better or worse spaces, or parts of spaces, but to say that the relations produced by space form a system where distances and proximities are created containing structures of distribution that are not equal in character. It is of importance to point out that there need not be a conception of space as hierarchical or assigning status for there to be a perception of how space does so. By ordering people, events, and things in space, status is created, which can only be done if there is a spatial hierarchy to work with – and this is a continuously ongoing process in many scales.

For a simple example, one can turn to the idea of space as *tabula rasa*, a blank sheet of paper, onto which events and intents are inscribed, which is not to say that it is a representation of space as such. Drawn to the extreme, however, the metaphor can serve to illustrate the point: the paper itself is not a neutral surface; it forms a space of its own. Suppose, for example, a point is to be placed on a sheet of paper – is it possible to find a 'neutral' spot on which to draw it? The point will end up either closer to one edge or the other, or central, or just by the edge, and so forth – positions all of which are different. The same phenomenon, but more complex, would emerge if we then place another point on the paper, a third one, and so forth. Any deformation of the paper – tearing a piece, bending, folding, or cutting – changes the range of possible relations and trajectories made on its surface. Thus the form of the paper limits the possibilities of relations between points that can be made, and even seen as single surface, space is neither neutral nor homogeneous. Such heterogeneity of apparently neutral, homogeneous, and symmetrical spaces has been extensively explored by Hillier (1996, 275-299). Naturally, space is never such an empty sheet, but is in concrete, social materiality, always already inscribed as a texture, filled with relations and actions that serve to define and produce it (Lefebvre 1991, 57).

## III

Second, what is the focus is rather how spaces relate to one another, and the resulting implications for and limitations of use, behaviour, or communicated relations and positions, than the spaces in themselves, although this is a simplification. In this sense, it is a kind of network analysis of space as built form, where there are significant differences between accessibility and visibility, for instance. In part, this can be expressed as that space "[...] is defined by relationships of neighbourhood between points and elements, which can be described formally as series, trees and networks" (Foucault 1997, 350). Space, in its physical form, has relations that form hierarchies, configurations of distances, proximities, sequences, narratives, control, and distributedness. Such patterns of accessibility and visibility influence how space is used and how it is experienced both on the way in which space *can* be used and on the way space

*is likely* to be used, even though it does not directly determine:

[...] the *texture* of space affords opportunities not only to social acts with no particular place in it and no particular link with it, but also to a spatial practice that it does indeed determine, namely its collective and individual use: a sequence of acts which embody a signifying practice even if they cannot be reduced to such a practice. (Lefebvre 1991, 57)

To be sure, I am not speaking of a topology as such, but rather a 'topology' that is in part defined by its form, which has topological character, which again has properties produced by the form that creates them. It is quite possible to alter space rather dramatically without altering its topological structure – but it is also highly possible to alter the entire topology by quite, materially, small means, such as the creation or building up of a door opening between two rooms which are otherwise only connected via the entrance hall to the complex.

#### IV

The question of research outlined thus far can then be understood as the relation between topological structures of space and social and cultural structures on one hand, and behaviour and event on the other. The idea is that space and event are interlinked, each affecting the other, and the attempt is to analyse this relation in as far as spatial topology is concerned. Again, this is something pointed out as of importance by Foucault, stating that "[...] it is somewhat arbitrary to try to dissociate the effective practice of freedom by people, the practice of social relations, and the spatial distributions in which they find themselves. If they are separated, they become impossible to understand. Each can only be understood through the other" (Foucault 2000, 435).

One field investigating such relations is the one commonly known as 'space syntax' (Hillier & Hanson 1984). This field offers theory and means for how to analyse the earlier discussed concrete materiality as relational formations, where the general idea is that space and society is interlinked; that is, that space is a social entity and that society is something partly spatial. It furthermore investigates this as configurations of spaces in terms of spatial entities which have certain definitions in how they provide social potentials and restrictions, such as that a *convex space* is a space where everyone in it can see one another; I will leave further definitions aside for now (see e.g. Hillier 1996 for more specifics). These entities are then modelled into graphs where the relations not between one space and the other is analysed, but relative positions in larger spatial systems. Let us try a simple example of a house of three spaces. These can be connected to form a row, and the entrance can be in one end. We have a linear building, with a deep structure. If we move the entrance to the middle space, we have a shallower building with two ends. If we connect the inner spaces, we have a shallower building with a ring structure – there is no 'end', and movement between any two spaces can take different routes. All of these also clearly on one hand create hierarchies of spaces, and on the other communicate use and difference. They form very simple *lines*, *trees* and *networks*, to tie it back to Foucault. They also serve better for different programmes: the early historical museums formed *lines*, clearly describing history as linear and with a specific sequence of eras; the early public libraries formed *trees* in accordance with the idea of knowledge of a continuously deepening and refining of increasingly different specialisations; and many cities form *networks* providing room for different route choices or connections to be made depending on priorities and choices. In reality, these tend to only exist in hybrid forms both as urban and architectural structures, but the figures are still informative in understanding what implications tendencies or emphasis in certain spatial structures have. Of importance is also to not that 'better' here means how they coincide with intention or programme, not if they are better or worse – knowledge, for instance, is no longer a tree but rather a field or a network, which can also be seen in how library and museum architecture has developed (Markus 1993; Koch 2004).

Furthermore, correlations between spatial forms of topological character and people's behaviour have been repeatedly found, in both practice and research, and for a wide range of cases where it might seem there would be none. This, however, is not to say that there is *first* space and *then* behaviour:

Space is more than a neutral framework for social and cultural forms. It is built into those very forms. Human behaviour does not simply happen in space. It has its own spatial forms. Encountering, congregating, avoiding, interacting, dwelling, teaching, eating, conferring are not just activities that happen in space. In themselves, they constitute spatial patterns. (Hillier 1996, 29)

Thus while an important part of theories and research is the empirical correlations between patterns of behaviour and spatial form, Hillier and Hanson refines it further: "[i]t seems as naïve to believe that spatial organisation through architectural form can have a determinative effect on social relations as to believe that any such relation is entirely absent" (Hillier and Hanson 1984:ix). The relation between space and human behaviour is more one of significant relations than cause-and-effect. Sets, or textures, in and of space offer possibilities and opportunities and restraints and prohibitions that participates in the range of actions possible or plausible, while those activities serve to define space in return by both materially forming it by positions or flows of bodies and in an intricate interplay or ballet interacting in the formation of relational *positions* and *situations* that emerge (Koch 2007). As Tschumi argues:

It is not a question of knowing which comes first, movement or space, which molds the other, for ultimately a deep bond is involved. After all, they are caught in the same set of relationships; only the arrow of power changes direction. (If I outline these two relations of independence and interdependence, it is to insist on the fact that they exist regardless of the perspective ideologies—modernism versus humanism, formalism versus functionalism, and so on—which architects and critics are so keen to promote.) (Tschumi 1996, 128)

It is not a question of finding determinants but rather dependent relations. That is, from a design perspective, the question is not 'what is a good design', but rather 'if *this* is the aim, then is it plausible that *this* would support it?'. The possibility to with some accuracy predict what streets will be more crowded in a new plan, does not inherently mean these will be better – it can be argued that even the most crowded of cities have secluded, quiet places to retreat to. Perhaps this is even a necessary component of urbanity; the close proximity of crowded and quiet places.

V

However, the emergent situations and the situating practice of space – including patterns of spatial use – need to be further understood. While correlation to activity and behaviour is of importance, it is also important to remember the discussion of relations between ideas, consciously or performatively translated into programmes, and built form as given example by the figures of line, tree, and network. Through such strategies, societies, organisations, families, groups, companies, and many other social and cultural entities both define and communicate identity and social and cultural values and ideals – directly as representation and indirectly through distances, sequences, separations, connections, and subdivisions. It can be argued that space is one of the most important means in which society defines itself, and that this in large parts is through how space connects and separates people, event, artefacts, and places (Marcus 2000). Spatial topology participates in the constitution of social relations and culture. It also serves to influence where things are more likely to happen, how people are more likely to move, and what is more likely to be a public or private, bustling or secluded, place – and what is allowed or emphasised in these various situations. As a result, understanding spatial

configuration also forms a powerful critical tool, elucidating and clarifying values through how they are built into the physical environment on a fundamental, if not always directly perceivable, manner. This line of thinking, here represented by specific theories and simple examples, has important implications for how to work with architecture both in theory and practice (e.g. Marcus 2000; Sathle, Marcus & Karlström 2005; Koch 2007; Markhede & Koch 2007; Ståhle 2008; Koch 2009; etc.), and has proven fruitful for both urban and architectural analysis. In many cases, even more so when complemented by and juxtaposed to other fields of knowledge, clarifying its limits and its potentials as well as refining and developing it as theory, method, and analytic approach. This presentation will be structured into three stages, a short theoretical introduction (as above), an example from practice discussing the relation between form and function and how this knowledge can be used in design projects (focused on Slussen), and one example from research discussing the theories and methods as a means of critical analysis (focused on department stores). It will then be summed up by a brief discussion of potentials, possibilities, and problems with the methods and theories facing the research field in the coming.

#### Bibliography

- Massey, Doreen. 2005. *For Space*. London: SAGE Publications.
- Anderson, Stanford. 2000. Architectural Design as a System of Research Programs. In *Architecture Theory since 1968*, 1<sup>st</sup> paperback edition, edited by K. Michael Hays, 492-505. Cambridge, Massachusetts: MIT Press. Originally published in *Design Studies* 5, #3 1984.
- Foucault, Michel. 1997a. Of Other Spaces: Utopias and Heterotopias. In *Rethinking Architecture: a reader in cultural theory*, edited by Neil Leach, 350-356. London: Routledge. Originally published in *Lotus* 48/9, 1985.
- Hillier, Bill. 1996. *Space is the Machine*. Cambridge, Massachusetts: Cambridge University Press.
- Hillier, Bill, and Julienne Hanson. 1984. *The Social Logic of Space*. Cambridge, UK: Cambridge University Press.
- Lefebvre, Henri. 1991. *The Production of Space*. Translated by Donald Nicholson-Smith. Oxford: Blackwell Publishing. Originally published as *La production de l'espace (Société et urbanisme)* (Paris: Editions Anthropos, 1974).
- Foucault, Michel. 2000. Space, Knowledge, and Power, interview with Paul Rabinow. In *Architecture theory since 1968*, edited by K. Michael Hays, 430-439. Cambridge, Massachusetts: MIT Press. Originally published in *Skyline*, March 1982, translated by Christian Hubert.
- Marcus, Lars. 2000. Architectural Knowledge and Urban Form: The functional performance of architectural urbanity. PhD. Diss., KTH School of Architecture. Stockholm: KTH.
- Markus, Thomas A. 1993. *Buildings & Power: Freedom & Control in the Origin of Modern Building Types*. London: Routledge.
- Koch, Daniel. 2004. Spatial Systems as Producers of Meaning: the idea of knowledge in three public libraries. Licentiate Thesis, KTH School of Architecture. Stockholm: KTH.
- Tschumi, Bernard. 1996. *Architecture and Disjunction*. Cambridge, Massachusetts: MIT Press.
- Koch, Daniel. 2009. Architecture re-configured. In *Proceedings of the 7th International Space Syntax Symposium*, edited by Daniel Koch, Lars Marcus, and Jesper Steen.
- Koch, Daniel. 2007. *Structuring Fashion: Department Stores as Situating Spatial Practice*. Stockholm: Axl Books. Doktorsavhandling, KTH Arkitektur.\*\*
- Markhede, Henrik and Daniel Koch. 2007. Positioning Analysis: Social structures in configurative modelling, in *Proceedings to the 6<sup>th</sup> International Space Syntax Symposium Volume I*, ed. Ayşe Sema Kubat, Özhan Ertekin, Yasemin Ince Güney, Engin Eyüboğlu, Istanbul: ITU Faculty of Architecture.
- Ståhle, Alexander. 2009. Compact Sprawl: Exploring Public Open Space and Contradictions in Urban Density. Ph.D.-Diss. KTH School of Architecture.

Stockholm: KTH.  
Ståhle, Alexander, Lars Marus and Anders Karlström. 2005. Place Syntax: Geographical accessibility with axial lines in GIS. In *Proceedings to the 6<sup>th</sup> International Space Syntax Symposium Volume I*, ed. Ayşe Sema Kubat, Özhan Ertekin, Yasemin Ince Güney, Engin Eyüboğlu, İstanbul: ITU Faculty of Architecture.



speaker 07

**The map is not the territory**

Claus Carstensen

Professor, Royal Danish Academy of Fine Arts, Copenhagen

**Short Biography**

In what is now becoming his trademark manner, Carstensen indiscriminately mixes media, processes, tools, and techniques to produce an imagery that is at the same time abstract and concrete, surreal and literal. Just as Carstensen forces traditional ideas of art-making to the edge and beyond, he compels viewers to extend their ways of seeing and thinking well past conventional boundaries of meaning and experience.

**EDUCATION AND TEACHING**

1993-2002 Professor at the Royal Danish Academy of Fine Arts, Cph.

1986-1993 Lives and works in Cologne (Germany)

1981-1983 Participant in the Copenhagen Circle of Semiotics

1979-1983 Student at the Department of Comparative Literature, University of Copenhagen

1977-1983 Student at the Royal Danish Academy of Fine Arts, Cph.

**SOLO EXHIBITIONS (SELECTED)**

Pavilion of the Naked. Galleri Tom Christoffersen, Cph., 2008

Colony of the Psychotic. Beaver Projects, Cph., 2008

UNTITLED ROOM FOR ZOE (slide return). Museum Sønderjylland – Kunstmuseet i Toender, 2007

Field Work - Deterritorializations/Reterritorializations, site specific works 1976-2006 Køge Skitsesamling, 2007

Praxis. Randers Kunstmuseum, Randers, 2005

Only Rats, Which Are Mutually on Guard of Each Other, Are Found In the Labyrinth. Galleri Franz Pedersen Horsens, 2004

U.N.A.M.E.R.I.C.A.N. A.C.T.I.V.I.T.I.E.S. Galleri Franz Pedersen, Horsens, 2004

A.M.E.R.I.C.A. A.T. W.O.R.K. Christopher Cutts Gallery, Toronto (Canada), 2004

**GROUP EXHIBITIONS (SELECTED)**

Art As Idea – Conceptual Photography in Denmark 1965-1979\*. Det Nationale Fotomuseum, Cph., 2007

Housewarming. Amagerfælledvej 40, Cph. , 2007

Outside the rules – Nordiska Kunstsolan on the road 2007-2008. K.H.

Renlundin Taidemuseum, Kokkola and Kaapelitehdas, Helsinki, 2007

Under Neglene (Under My Nails). Galleri Tom Christoffersen, Cph., 2007

Clinch. The Danish National Gallery of Art (SMK), Cph., 2004

Sted/Place. Oliewenhuis Art Gallery, Bloemfontein (South Africa) &

Johannesburg Art Gallery, Johannesburg, (South Africa), 2004

Everwanting Streets. Röda sten, Göteborg (Sweden), 2004

Wall Drawings-16th International Drawings Exhibition. Museum of Modern and Contemporary Art, Rijeka (Croatia), 2004

**CURATORIAL PRAXIS (SELECTED)**

The Map Is Not The Territory. Co-curator, Esbjerg Kunstmuseum, Esbjerg, 2008

Abschiedskonzert. Galleri Tom Christoffersen, Cph., 2002



speaker 08

**Surveillance in Urban Spaces**

Anders Albrechtslund (alb@hum.aau.dk)

Assistant professor, Ph.D. , Department of Communication and Psychology,  
Aalborg University, Denmark

Peter Lauritsen

Associate professor, Ph.D. , Media Studies, Århus University, Denmark

**Short Biography**

Anders Albrechtslund holds a Ph.D. (Aalborg University, Denmark 2008) and has published several peer-reviewed articles on surveillance, new media and ethics, and he is a frequently used commentator of these issues in Danish media. Further, the author has extensive teaching experience within these fields of study. Currently, he is working on a research project called "Surveillance in Urban Spaces" (link: [http://www.albrechtslund.net/index.php/?page\\_id=181](http://www.albrechtslund.net/index.php/?page_id=181)).

Peter Lauritsen is associate professor at Information and Media Studies, Aarhus University. He is director for Forum for Surveillance Studies (fos.au.dk) and Center for STS studies. Currently, he is editing a book on surveillance in a Danish context and is working on a project called "CCTV in Danish Media".

**Abstract**

In later years, a number of changes have occurred with regards to surveillance in urban spaces, especially in the Danish context. In part, a number of mobile devices that facilitate surveillance have been introduced to the mainstream market and, in part, new legislation concerning Closed-circuit television (CCTV) have been introduced, which make possible increased use of cameras for private businesses. These changes are significant for those of us who live in the city, however, our knowledge about these changes is limited.

The research project "Surveillance in Urban Spaces" is focused on this issue. The purpose of the project is to study the changed urban space with regards to surveillance. The ambition of this project is to broaden that perspective. First, the study implicates all technologies, which is found in urban spaces whether we are driving cars, biking, walking, shopping, dining or having coffee at a café. This includes CCTV, mobile devices, GPS trackers, RFID tags, laptops and other technologies that surround us in an everyday urban life. Second, the focus is not only crime related effects, rather, the aim is to study the *meaning* and *significance* for the experience of urban spaces.

The research project "Surveillance in Urban Spaces" is based at Department of Communication and Psychology, Aalborg University, and funded by the Danish Research Council between 2008-2011.

speaker 09

**From Kultorvet to the Milky Way, Polyform Arkitekter**

Jonas Sangberg (info@polyformarkitekter.dk)  
Polyform Arkitekter, Denmark

**Short Biography**

POLYFORM is a young architectfirm, which conducts tasks in planning, landscape, urban-building- and productdesign. At the moment Polyform and Karres en Brands are working on the renewal of Købmagergade, Hauser Plads and Kultorvet in the project: Fra Kultorvet til Mælkevejen (From Kultorvet to the Milky Way).

**Abstract**

The proposal is based on a simple concept, supporting both an intense and diverse city life and at the same time links the past with the present. This new design shows not only character and changeability but it also features a whole new way of looking at sustainable city spaces that contain openness to a wide range of uses for many years to come.

Through the use of simple elements of design and the use of natural stones in shades of black and white, the design team has created a unique course of streets like very few places on the planet. The city spaces slowly changes character from one space to the next, also with regards to functionality and history. The course of streets slowly changes character, from appearing all white and bright they change into black and dark once they become squares at Kultorvet and Trinitatis Kirkeplads.

Through special processing of the pavements the city spaces changes character with changing weather, which means that Købmagergade, Kultorvet and Hauser Plads always will have new sensory and emotional experiences to offer, no matter when you happen to be there.

**Paper:**

**Intro**

In the summer 2008 Polyform and Karres en Brands won the international competition for the renewal of Købmager Street, Hauser Plaza and Charcoal Square in cooperation with Oluf Jørgensen Engineers and Ulrike Brandt Licht with the project: From Charcoal Square to the Milky way

The proposal is based on a simple concept; supporting both an intense and diverse city life combined with linking the past with the present. This innovative design illustrates not only character and changeability but an innovative way of looking at sustainable city spaces that consequently remain open to a wide range of uses for many years to come.

Through the use of subtle design techniques, by means of implementing natural stones in shades of black and white, the design team has created a unique sequence of streets distinct from very few places in the world. The city spaces gradually adjust character from one space to the next making reference to functionality and history. Step by step the course of the street progressively changes from white and bright to black and dark as it opens up into Charcoal square and Trinitatis Church Plaza.

**From the Charcoal square to the Milky way**

Commonly public space is identified as changing in pace according to new

technologies; digital networking, communication and interactivity. Even if the traditional, physical, public space remain central for a city and its inhabitants it is important that it allows for these changes. It is important that the space does not remain static, it must adapt to changing habits and demands from its users. The public space should belong to the city and its inhabitants.

Design is an initial state and can, when it follows the changing demands and conditions, change and develops over time. Furthermore the design has the ability to change in response to specific needs. A dynamic design therefore holds a social aspect; the ability to generate user interfaces that are not necessarily programmed and as a result stimulate multiple space use. On one hand the plan defines the relationship between materialization and detailing and on the other it defines the relationship between concept and design. This approach to design and research results in a physical public space, this is not the final product but a product that can alter from season to season, week to week and even day to day.

We initiated the process by giving Købmager Street and adjacent spaces a natural stone paving of mainly sawed stones with a size of 10x10 cm in different shades and varying surface treatment.

Daylight studies reveal the precise placement of street furniture and features. Resting sites and meeting points are placed or moved to locations where the sun shines the most!

The Nordic light is crucial for urban activities and general well-being. To celebrate this, the sun, with its daily and yearly cycle, is rightly the basis for the overall light concept. The changing length of day and night is a part of the identity in northern cities; people enjoy the sun, they long for it. The presence of daylight and especially sunshine, increases the qualities of a place and creates an overall sense of comfort, therefore it is important to focus on light as a source of the good urban life.

"Night should remain night and not be turned into day" is the guiding theme for our light design scheme. A mellow and calm overall light level allows for safe wandering through the city after dark. Certain spaces are accentuated by lighting generating spaces of soft light, which call for a longer stop or rest creating comfort and ambience.

### **The pedestrian street**

Frederiksborg Street and Købmager Street represent a connecting link from one point to another, passing through a series of squares, plazas and spaces; Charcoal Square, Trinitatis Plaza and Amager Square. These are the functional spaces. Shoppers must be able to easily navigate the area while delivery trucks are able to bring in the goods and fast passes can make a hurried route through. We aim to improve the experience for everyone and therefore we stress the qualities of a clean site. We suggest removing a few existing trees (presently they only serve as a storage for bikes and trap garbage) and converting the street with a homogenous yet sensible pavement of Scandinavian natural stone in 10x10cm blocks. The stones come in three different colour tones with different surface treatments. They can be sawed, flamed or hammered. This give the street a subtle expression both day and night, and a certain crystalline and reflecting surface right after the rain.

### **The spaces**

Where Købmager Street is a functional space and a transit zone, the three "outposts"; Charcoal Square, Hauser Plaza and Trinitatis Plaza act as diverse individual attractive urban spaces. Based on the roots of their creation they become the "third generation urban spaces". In this context the configuration

and use of the elements are crucial to get people to lengthen their stay. The amplifying qualities, textures, reflections and colours influence by-passers to wind down and take a rest and once this occurs the magical urban life begins.

### **Charcoal Square**

The charcoal square is a space made for enjoying quality urban life during the day as well as at night. It is a meeting place designed to engage with the pace and flow of people. It is a fun and attractive place where you can take a seat, catch up on the latest street fashion or read the daily news at a sidewalk café.

The organization is arranged to create a natural stop during a shopping tour of down town. The large fountain interrupts the passage and pushes the activity and life naturally to the edges of the space, unless you prefer to take a seat around the perimeter of the fountain to enjoy the sunshine. Shade lovers are able to position themselves under one of the trees on a warm summer day. The fountains multipurpose use creates a stage for performances of music events or film happenings.

As a base for an attractive and active urban life at Charcoal Square, we have chosen to interweave a black diabase stone into the 10x10 cm pavement system; hereby Charcoal Square will stand out noticeably in relation to the pedestrian street, however remaining within the overall paving concept. The black stone is tactfully laid in jagged patterns; an inspiration from the sites history as it was once a charcoal market with busy charcoal merchants and lively trades. The diabase stones will have a varied surface treatment, corresponding to the other stones in the street, providing a dynamic and unique experience when the pavement changes with the weather on a daily basis.

Three light posts supply the square with soft general lighting; the light output is kept at a minimum. The fountain emits a fine steam like fog as a contrast to the dark black granite surface.

### **Hauser Plaza**

Hauser Plaza is a space that provides peace from the daily crowd and stress along Købmager Street. The space acts as a green pocket and an oasis for surrounding buildings and the people therein.

Varying terrain grades, pavement structures and simple light elements, generates inviting spaces with variations between light and shade. The lush, intense and green oasis floats on a pavement of three light granite stones of three different surfaces. This allows the space to keep its unique, secret character yet continues a connection to Charcoal Square and the surrounding Pedestrian Street.

It is in this urban space where you find local kids playing in the micro hillscape, while parents, nurses and relaxing couples inquisitively follow their play. The soft undulating landscape is supplemented with rubber and asphalt surfaces, a circular sand box and playing equipment pavilion to meet the needs of active children.

During evening and in the winter a general light combined with lighting balloons and projectors in the ground illuminates season the place.

The built in lights outline the structure, the materiality and the local topography during dark evening hours. Hauser Plaza is no longer a place for solving traffic problems but an attractive urban space for curious visitors.

### **Trinitatis Plaza**

The glittering stones integrated in the Købmager Street pavement become concentrated at Trinitatis Plaza. Surrounded by “stars” the old observatory at the Round Tower and Trinitatis Church are highlighted. The plaza stands out as a stunning place in the city. Here you are among stars both in the sky and on the ground.

The pavement changes from light to dark to indicate you have now passed from one space to another. Simultaneously the dark pavement contrasts the “star sky” in a simple and precise way. At Trinitatis Plaza three dark shades of granite are used with varying surfaces. The Pavement and the light installation allows the space to grow. Imagine, finding yourself amongst the Milky Way when the star spangled sky and twinkling pavement merge after a rainfall.

Towards the rear end of the church you are attracted by light and rippling water interspersed in the existing pavement of large granite slabs. Children are challenging the power of the water jets as their parents enjoy a macchiato in the sun. Suddenly Trinitatis Plaza has transformed into an urban space filled with life.

### **Sustainability, environment and accessibility**

The use of robust and long lasting materials makes the construction phase rational, both concerning the use of resources and in economical terms, the materials also allow for easy and cost efficient maintenance. Ever since the first made sketches it has been of our great concern to establish a strong environmental sustainable outcome for the project. We therefore retain the best and most vital trees and the existing pavement of Trinitatis Church as well as the existing Copenhagen lights that are suspended between the facades over Frederiksborg Street and Købmager Street. We will reuse and restore existing furnishings throughout the site resulting in an environmental as well as economical sustainable outcome.

Our choice of material, Scandinavian natural stone is an eternal material that with minimum processing adds quality and value to a place for years to come, another sustainable option.

Furthermore we assure that water is collected and recycled in the fountains as well as solar cells or low energy light sources to run the newly proposed lights.

Another important focus was the issue of accessibility. We chose to make one unifying surface without edges or any other obstacles. The granite surface treatment allows for the handicapped as well as people in stilettos to reach all corners of the area.

From an environmental point of view the project may be characterized as a robust, vandal proof urban space that stands the wear and tear of a city, its inhabitants and visitors, while emphasizing existing stories and qualities by adding a minimum of new elements. Thus meaning we create sustainable urban spaces that in future will continue to provide a frame for the forthcoming quality urban life.

### **Conclusion**

This state of the art public space provides the city with a continually changing character, an identity in which every individual can relate to. It generates a multitude of opportunities and creates a flexible urban space amongst the solid city framework that prepares the site for future challenges.

### **About POLYFORM**

POLYFORM is a Danish architect office founded in order to develop an architectural practice that turns intense research and analysis of practical as well as theoretical issues into the driving forces of innovative design. We are based in Copenhagen, with projects all over Scandinavia.

POLYFORM produces designs and studies in the fields of architecture, design, urbanism and landscape design. Therefore a given assignment is always seen as part of its context.

The office works with project from research to full scale construction.

POLYFORM do not believe that architecture is about style or fashion. Instead we give each project a solution that is an answer to its needs. Therefore the goal is through intense research and analysis together with the client, consultant and users, to solve the given task in a way that the result is a must efficient, innovative and stunning designs.

POLYFORM wish to break with the traditional patterns of architecture. We want to create unique places through developing spatial organisation without forgetting the history, smart use of materials and the contextual relation to the site. We claim that landscape, planning and building is about setting up robust, tailor made frames that make up the base for a good life and sustainable living.

POLYFORM is owned and managed by Jonas Sangberg and Thomas Kock. At the moment the office works palette of different planning, building and urban design projects such as Købmagergade and a master plan for 300 hectare new city development in the Northern Harbour of Copenhagen.

speaker 10

**Urban Qualities in the Experience City – Social and Cultural Exchanges by Design**

Gitte Marling (marling@aod.aau.dk)

MA Arch., Professor Ph. D, Department of Architecture & Design, Aalborg University, Denmark

**Short Biography**

Gitte Marling (born 1950) is MA Arch (1977) School of Architecture and PhD (1990) from Aalborg University, Department of Development and Planning, Denmark.

She has worked as a research fellow at The Aarhus School of Architecture and as a coordinator of sector planning at The Regional Planning Office, Aarhus County.

In 1984 Gitte Marling was associate professor in technology and planning at Aalborg University, Department of Development and Planning and from 1990 associate professor in urban design and planning at the same department. In 2001 she became associate professor and in 2008 professor in urban design at Department of Architecture and Design, Aalborg University.

Gitte Marling has been leading several research projects, support by The Danish Research Council. Present research is in the field of cultural planning and city stages: the project, "The experience City – Hybrid Cultural Projects and Performative Urban Spaces" is supported by Fonden Realdania and is running until 2012.

Gitte Marling has been head of the Ministry Research Board, Ministry of Cities and Housing in 2002 – and she has participated in several ministerial expert groups, research network and international scientific assessment committees and boards.

Gitte Marling has been teaching at all levels and in a broad planning and urban design curriculum.

She has written a long list of articles and books and she had edited anthologies and research journals. Books and journals the last ten years are:

"Bymiljøindikator – bymiljøvurdering i danske boligbebyggelser", Gitte Marling og Mary-Ann Knudstrup Aalborg Universitet 1998.

Urban Welfare, Lifestyles, Architecture and Resource Consumption ". Gitte Marling (ed.) Aalborg University Press, Aalborg 1999.

Mapping the Modern City: Gitte Marling & Angsana Boonyobhas, ed.(2003)

Department of Architecture and Design. Aalborg University & Faculty of Architecture, Chulalongkorn University. Bangkok.

Songlines / hverdagslivets drømmespor. Gitte Marling. Aalborg Universitetsforlag. 2003

Urban Lifescapes (ed.) Marling, Kiib, Jensen and Bech Danielsen. Aalborg University Press. Aalborg, 2004

Bangkok Songlines: Gitte Marling (2005). Department of Architecture & Design AAU

Big Global Cities – Mapping outside in and inside out. ed. Nordark #307. Department of Architecture and Design, Aalborg University.

FUN CITY: Gitte Marling & Martin Zerlang ed. (2007). Arkitektens Forlag. Copenhagen

Designing the Experience City: Gitte Marling ed. (2008). Nordic Journal of Architectural Research. 1. 2008. Throndeim.

www.exp-city.dk

**Abstract**

*Urban design, living areas, gated communities, clubs ...everything seems to be related to lifestyle, even the way we use and experience our cities. During the last decades, urban everyday life has become more and more socially segregated. The tendency is striking in large global cities, and the development is also evident in the Nordic welfare city.*



This paper discusses how this socially segregated urban life can be countered by urban design and cultural planning which focuses on creating an open, democratic experience city with cultural stages and public domains. The paper is based on results from the research project The Experience City – Hybrid Cultural Projects and Performative Urban Spaces. (Fonden Realdania and Aalborg University).

## **Paper:**

### **Introduction**

Almost all Danish cities are making a great effort towards setting a new experience city agenda. Copenhagen has introduced a series of events, from carnival, jazz and international theater to sports, gay and lesbian festivals etc. Roskilde has its Roskilde Festival – which gathers 100000 people around rock music and other activities every year. Horsens is well known for its European Middle Age Festival and big rock concerts, while Aarhus has branded itself through the Aarhus Festival Week for more than thirty years. After the first couple of years, the organizations became involved and now the activities have expanded from inside the cultural buildings to the public squares -transforming them to stages and experience spaces.

Lots of investments have been spent on new cultural buildings and projects in the Danish cities, often with a wide range of programs and activities. Universities have lately been mixed with concert halls and exhibitions. The buildings are opened up for the public with cafes, restaurants and all sorts of events. The new university and concert complex named Alsion in Sønderborg is an example of this; the same could be said about Nordkraft in Aalborg and the old Paper Factory in Silkeborg. They are projects which combine learning with experiences, and they transform the city by setting up new stages for performance and city life.

The driving forces behind these efforts are the experience economy and the power of leisure and spare time you can spend as you like. The agents are politicians and urban planners dreaming of transforming even provincial cities to cultural cities with an international brand.

This paper will address a range of questions connected to this development. It will focus on the perspective of a new city culture, but also on the possibilities of creating qualities like a diverse city life and public domains. Furthermore, the question of architectonic and aesthetic values will be addressed. That is, what kind of new qualities are created by means of new performative and experience architecture?

### **Qualities: The city of experiences and learning**

The experience economy, or the experience city, is connected to fun and leisure. Research has documented that we use an increasing amount of time and money on our leisure activities. Never before have so many leisure projects been developed in the entire urban landscape and never before have we had so many cultural activities or events (Metz 2004; Marling, Kiib & Jensen 2008). Worth noticing, however, is the fact that many of the cultural projects have requirements that exceed mere entertainment. They want to inform, to involve, being socially inclusive or they have an element of learning. This finding calls for a more precise definition of the term "Experience":

*"In our understanding "experience" covers many analogous concepts such as discovery, practice, to live through something... And as a consequence of the experience, one will be "skilled", "experienced", "competent" and "tested".*

*Our reason for bringing this to attention is that we hold the opinion that there*



*is an element of learning, refinement and culture that is often ignored in the more marketing and market oriented discourse of the experience economy and experience city. In this sense, "experience cities" place heavy demands on the quality of the experience and its framework."* (Marling, Kiib & Jensen 2008)

Brandts in Odense is an exhibition complex including Kunsthalle Brandts, The Danish Media Museum and the Museum of Art Photography.

Together the three institutions run a Communication- and Learning Centre. The goal is to create a meeting between art and culture on one hand and on the other children and youth, based on their own experiences. The learning centre is very creative in its approach and successful in communicating the institution's exhibitions to children of different ages and cultural backgrounds. The children and their parents are activated and amused. According to the leader of the learning centre, Leslie Schmidt, everything can be communicated; it is just a question of creativity and professionalism. (Schmidt 2008)

Brandts is located in an old cloth factory containing many other cultural programs like an art cinema, a cafe, an art academy, galleries, shops and restaurants, and an outdoor amphitheatre for performance. During the last twenty years, this complex has developed. It has become the cultural centre of Odense and has had a great influence on both the cultural life and on urban renewal and transformation in the city.

Brandts is the narrative about professionalism, persistence and the long haul. The case shows the possibilities of combining art, fun and learning; but what about the many events? Do they have an element of learning, and do the participants gain new knowledge?

The European Middle Age Festival in Horsens is just one example hereof. The last weekend in August, the central street and the areas around the two old churches and the town hall are transformed into a middle age marked including workshops, stalls, an exhibition of the King's animals, knight tournament matches, performances and processions. The whole environment is redesigned. The modern lamp posts, benches and dustbins are hidden behind piles of wood and trees. Five thousand participants are dressed like the peasants, commoners or the nobles of the Middle Ages.

This great performance attracts more than 200,000 people from all over Europe. It is a huge event based on solid planning and local organization. What is most interesting in the context of urban qualities is the element of learning. Two local middle age archeologists are involved in the planning and implementation of the festival. They focus on different themes like food, flowers, dresses and jewels, and they work out lists for the stake holders and participants. In lectures and pamphlets, they communicate the newest knowledge about the Middle Ages: what kind of fabric and style were used in the dresses of the time; which raw materials were used in cooking; which dishes were served; what kind of flowers and fruits were available; how was the development in the design of armors etc.? Also, music, performance and tournament matches are themes, which are picked up. During the last fourteen years, the quality of originality has been improved.

The festival in Horsens is a huge learning environment, and people in Horsens are probably the best educated when it comes to knowledge about everyday life and festivals during the Middle Ages. The local middle age archeologist, Bodil Møller Knudsen, asks if we know any other museums that have 200,000 visitors in one single weekend every year. (Knudsen 2008)

The recipe for success in this regard is, like in the case of Brandts, professionalism, creativity and the long haul.

### **Qualities: The open, democratic city**

The Nordic welfare city is democratic and open. However, it does have lifestyle domains and socially segregated living areas. The wealthy inhabitants have singled out the very best located and most beautiful sites to settle down, leaving the more humble and less accessible ones to the less wealthy parts of the population. It does have gated backyards and door bells in apartment buildings; but no gated communities protected by walls and gates. It still has a lot of open and public places, squares and parks, and it still has public and free of charge cultural arrangements, festivals and events.

Even if the Nordic welfare city is a safe city, many elderly and middle aged inhabitants seem to fear strangers. They show no particular interest in newcomers and their culture. Instead they try to protect the Danish values by turning their back to the new influences, developments and social and cultural challenges.

According to Zygmunt Bauman, this attitude is a problem for the open, democratic city. (Bauman, 2000) The "city of fear" is the term Bauman uses to characterize the closed and segregated city, while he uses the term "the city of hope" about the open and diverse city (Baumann 2000). He argues that the diverse and open cities hold the future as the clash between cultures creates an innovative environment where traditional everyday practice and perspectives are constantly questioned and challenged. (Bauman, 2000)

It is important for the Nordic welfare city to protect the qualities, which form the open society and the secure urban environment. Among the possible ways of fulfilling this goal are creating cultural activities and cultural meeting places for cultural and social exchange.

We know that our lifestyle and our cultural background are important factors in the way we use the city and in our feeling of belonging to different hubs and sites. (Bourdieu, 1997; Marling, 2003). We have traced different territories or songlines belonging to different lifestyle groups (Marling, 2003). We have the ability to get information about different lifestyle territories in the city (Harder, xx). So the question is if it is possible to plan or design the city in a way that makes territories or songlines cross or overlap.

In Malmoe, the planners asked what would happen if they relocated the courses in Swedish for newcomers from the outskirts of the city, where the newcomers also live, to the harbor front with the new university. The problem is that young Swedish men and women studying at the university never meet the young newcomers, because the immigrants' everyday territories never reach as far as to the university, the harbor front and the cafes and clubs in these locations. What would happen if they met on a daily basis - and if cultural and ethnic markets and events took place in this new central area? (Malmoe Municipality: Mötet i Staden, 2007)

In Aalborg, the municipality is in charge of a very interesting cultural project in this regard. An old Power station, Nordkraft, is being transformed to a cultural hub with a wide range of program for the cultural elite, for instance small and alternative theaters, an art cinema, an art school, exhibition areas etc. Cafes, sport facilities, and concerts have broader target groups, and arrangements for children aim naturally at this specific group of users. The plan is to create a hybrid cultural project, a new public domain for youngsters and grownups and for different lifestyle groups. It has come to Aalborg Municipality's attention to plan for an open, democratic city. Mixed land use and programming for a wide range of users has become one of the urban design tools, but an innovative cultural planning is also a part of the strategy.

In general, planning for specific groups, for instance youngsters or newcomers,

is not specifically characteristic of the Danish inner cities.

It is nice to be in the Danish cities. A comfortable city life is going on. The alcoholics and the drug addicts are gone. Evidently, they have found more abject places to gather, places that most people do not visit. Gone are also the youngsters making a racket with their roller skates and skateboards. The skaters ruin the new pavements. For this reason, they are often banished to the parking lots and empty backyards. On the whole, there is not a lot of obliqueness or very much youth culture to be spotted in the downtown areas.

Meanwhile, it is similarly difficult to get a sense of any cultural imprint that immigrants and other "new Danes" are making on the provincial towns' skin. They live here. At least, that is what the statistics tell us. But neither their religions nor their cultures are represented in the urban architecture that is presently springing forth in our urban centers. And we have to ask in good conscience: What is the basic reason for this?

Research from the Experience City project shows that only very few cities have taken initiative during in the past five years to set up activities or spaces for new Danes or minority groups.

One of these cities is Randers, where a domain for "Ethnic Danes" has been established in cooperation with artist groups from the city and the creative activity of citizen-associations. The domain is situated in a central location, but it is not directly accessible from any of the city's public open squares, neither the old ones nor the new ones. For this reason, signposts are necessary. Consequently, there are small brass stars in the sidewalks that guide the way to "Underværket," a layout that consists of four buildings with workshops, meeting rooms, a small "ethnic" bazaar and a roof-covered plaza. (Marling & Juul 2008)

If you had expected to meet an ethnic aesthetics, something distinctly un-Danish in the center of Randers - or perhaps some kind of raw art scene - you will be disappointed. There is not much trace of a milieu like that. It is nice here, but it is also a bit too prim and proper. Most of all, the building looks like a municipal workshop, constructed of solid, high-quality materials and decorated with items of Danish craftsmanship. Could it be that the bazaar atmosphere is more conspicuous when events are going on, when the booths and the visitors cause the building to recede a little more into the background?

Important projects, which deserve to be mentioned, include also Bazar West and Bazar Fyn. They are privately owned and managed markets which provide the shoppers with an experience of colors, smells, noises and all sorts of goods from especially the Middle East. The stalls are run by newcomers, who have invested their hopes, energy and family fortune. (De Linde 2008)

Bazar Fyn has an indoor and outdoor square and a stage for performance. The Bazar is located in the city center of Odense close to the new development on the harbor front. The project is interesting when discussing the qualities of a diverse, open city. Because when Bazar Fyn opened a couple of years ago, the many newcomers in Vollsrose in Odense got a domain in the Danish middle class dominated city center for the first time. For the first time they had a chance to influence the cultural programs, the aesthetics and to meet the Danish families and offer them not only their products but also their culture. The idea was generated by a private investor, who describes his project as a cultural integration and learning project. (De Linde 2008)

The question is if people in Odense can learn to meet the new citizens, who are actually very proud of this new platform - this new public domain where they feel they have something to offer.

### **Qualities: culturally driven public domains**

In order to maintain democracy, social balance and cultural diversity, we need places for social and cultural diversity, like Bazar Fyn, and cultural events. Places where an exchange of perspective is not only possible but also occurs. We need public domains (Maarten Haajer & Arnold Reijndorp 2001).

What is a public domain? A public domain is more than a meeting place according to Haajer and Reijndorp. It is a place where cultural and social exchange is not only possible, but also occurs. (Haajer & Reijndorp, 2001). Public domains can be found in open public squares, streets and parks, but also in privately owned and managed yet publically accessible places. It can be on harbor fronts or in city centers, but they can also be found in all other indoor or outdoor sites in the entire urban landscape. Public domains can be of a permanent character or established temporarily for a day, a week, a specific season etc.

Many cultural projects and events take place free of charge in the public space. This creates a new form of urban culture and an opportunity for bringing together different cultures, which is positive in its own right. But we really do not know whether any social and cultural exchange actually takes place; and we have not developed planning strategies to enhance such an exchange in neither permanent nor more fleeting structures.

What project Experience City found out during more than forty interviews with cultural agents in Danish cities is that music, performance and festivals have enormous potential in creating an open environment and even public domains. The Roskilde Festival and the Aarhus Festival Week are brilliant examples of this.

Every Summer the last 38 years, the Roskilde Festival has built up a temporary city with streets, squares and a city center including shops, cafes, hospitals, baths, exhibitions, several stages and different living areas divided into communities with service and leisure facilities and local squares. This temporary city has more facilities and cultural offers than several Danish provincial cities. Rock music is the main generator, but also performances, exhibitions, movies and different sports activities are important elements of the festival.

The Roskilde Festival is a non-profit organization with twenty-five employees and up to 25,000 volunteers. The yearly profit is provided without any deductions to humanitarian and cultural projects. The last couple of years, the festival theme has been "human to human" to stress that the festival is a strong part of the society, even if the main goal of the festival is to create an open and diverse temporary experience city with an atmosphere that is simultaneously fun, relaxed and warm. (Danielsen, 2008)

Many friendships have been made during the festival across cities, regions and countries. They are maintained via Face Book and other internet based networks. (Rasmussen 2008)

In 2008 the headline for the Aarhus Festival Week was "Open City". During the first week in September, the local citizens and their guests could explore and experience their city. They were invited into well defined lifestyle domains like the prison yard, the mayor's office and an apartment block in Gjellerup. Many hidden places were opened up to the public. A "Red Route" guided people from place to place in the inner city where they could experience artists working in a back yard, and old squares were temporally redesigned, the stream was used for fun and performance, and the longest sofa in the world was placed in a centrally located transit space. In this sofa, all kinds of tired feet took a rest-side by side. Sitting besides strangers and enjoying the soft red sofa was an amazing experience in itself.

The Aarhus Festival Week is a showcase of how to open up a city. The driving forces are experiences, culture, art and urban design.

**Qualities: architecture and design as generators of experiences and a feeling of belonging**

All over Denmark, the downtown areas have been given a lift. The cars have been driven away for the sake of not only one pedestrian shopping street but for entire networks of pedestrian thoroughfares - with many new plazas, both large and small. New pavements in granite, trees, flower urns, benches and different kinds of illumination all give rise to a comfortable framework around life in the city. Access has been gained to fjords and estuaries, which in turn has opened new recreational possibilities.

Much more urban life has come about. Many cafés invite people to stop by and take a seat and there are a number of town parties, summer arrangements and the like, which serve to gather the city's residents together. In the middle of an ordinary weekday in the month of August, a relatively large number of people are busy shopping. The children are splashing about in the new fountains. The benches are occupied and even the more unofficial seating places are in use.

Many years of working toward bringing forth better urban spaces and efforts to establish pedestrian zones in the central parts of the city appear to have borne fruit. Take a tour of the Danish cities, large and small, and you can observe that the benches have been sensibly placed in relation to the sun, the wind and the view, and that trees and flowers create oases and that water creates life. You can also ascertain that the sightlines to the sea and the landscape have been kept open, that the facades of the buildings are no longer being cut in half by canopies to any great degree and that considerable sums of capital have been invested in costly pavements, fountains, fixtures and lighting. (Marling & Juul 2008)

Design guidelines and concepts developed by Jan Gehl are more or less followed in the entire country. One of Gehl's statements is that people attract other people. So it is important to concentrate and gather the forces around central thoroughfares and regions in the city in order to create an active zone. (Gehl 2000)

I would add that it is important that what is being collected should not merely be more of the same but that there should be a conscious programming of a varied offering.

As we have seen, it is important to inscribe the "New Dane's" cultures into our urban life along with that of the young people, the marginalized, and people who are thinking in a different way if the city centers are really going to function as cultural melting pots and shared domains that the citizens can identify with on the broad level.

This can occur by setting up the city's open plaza areas and publicly accessible spaces in such a way that they will invite different cultural milieus and lifestyle groups to stop by and to stick around for a while – winter, spring, summer or fall in the day, the evening and the night. This can also occur by working with "event spaces", where different kinds of arrangements can be organized that appeal to a shifting array of target groups.

My focus in this connection, then, is that urban designers really ought to work consciously and deliberately with creating spaces and events for the large multiplicity of people. This has been the case in two very different examples from Copenhagen and Frederiksberg.

The Harbor Park at Island's Warf represents a long design process with the local

inhabitants as actors in the first place. The storytelling starts in 1983-84 where the local committee at Island's Wharf in Copenhagen got the right to use the northern part of the harbor area and the wharf. 10,000 square meters were transformed into the first park by the local grassroots and activists. In 1995 the area was extended and a landscape architect and an urban planner produced a new site plan for the whole area (Jensen 2008). In 2002 Copenhagen could open its first harbor bath, which was added to the entire harbor park.

The complex has been a success. Many different lifestyle groups use it. On a summer day, several hundred people will hang out and enjoy the sun and the water, while skaters are performing on the ramps. The local cultural house will open its doors and provide people with food, coffee, ice creams etc. Few meters from this scenery, the local alcoholics will observe the city life or grill their dinner at the huge grills in The People's Park, which is a section of the Harbor Park.

Copenhagen has got a new important public domain. On this small site, youngsters meet families with children, the man on the bench, the sun lovers, the newcomers and the upper class stroll along the newly opened art galleries or attend one of the music or ethnic festivals in the park. Many different groups seem to have a feeling of belonging to the site.

The success is based on a careful planning of a diversity of often overlapping social and cultural programs in addition to a concern for the used materials in the design, aesthetic values and sense of place. The process, which has been developed over a span of years, the programming and the architectural representation are all elements that are worth studying.

Another example of creating public domains by design and architecture are the new squares in Frederiksberg. The goal was to create a vibrant new heart in Frederiksberg on a plot where a new shopping centre, a new metro station and new institutions (school of Commerce, a high school and a library) were located. Behind most of the buildings was an undefined wasteland with a bicycle lane crossing. The firm SLA transformed the area into five connected squares with different visual or audiovisual effects. Water, light, vegetation and sound were used as design tools.

Frederiksberg's new city center has become these sensuous squares. On a rainy day, it allows you to explore the Danish weather and the color nuances of grey in grey. You can experience the changes when the sun suddenly breaks through from behind the clouds and makes reflections in the designed water pools in one of the squares. In the evening, special lightning effects will give a completely new experience with a small red wood or filigree pattern on the pavement creating a piece of scenery. You can experience different sounds from fifty sound wells. It might be a frog jumping from one sound well to another.

In this artistic way Stig L. Andersson had created a space for dreaming. Sitting on a bench listening to the frog you might construct your own mental place and story, he explains. You might think about the meadow where you studied frogs as a kid. Mentally you combine nature and the city. You feel you belong to this place in your own mental way. (Andersson 2008)

This is a very interesting and new way of creating public domains by design. You need obviously not to use strong symbols or visual representations of culture. Virtual elements combined with artistic ways of using water, steam and light create spaces for dreams. Sitting in one of the squares looking and listening to the scenery gives an opportunity to communicate your story to the person next to you. (Andersson 2008)

Frederiksberg's new performative squares are popular among the citizens. They



would like the municipality to create more performative urban spaces which facilitate their dreams and imaginations.

Stig L. Anderson's approach is very similar to that of young installation artists like Olafur Eliasson or Jeppe Hein. With water, mirrors, benches, light etc., they produce a new perspective on well known squares or sites. They create curiosity, experiences and provide the urban spaces with installations which function as generators of communication and conversation among the busy citizens and all cultures, ages and lifestyles. See for instance Olafur Eliasson's water curtain in New York and Jeppe Hein's water pavilion in Germany and odd benches in Mjølner Parken in Nørrebro, Copenhagen.

### Conclusion

The experience economy puts the city under pressure. The negative effect is the disneyfication of the environment turning the inner cities into leisure parks. The negative effect is also all the events, the crowd, the noise and the waste disturbing everyday life. (Metz, 2004)

However, the experience city also provide us with opportunities for opening up city life and creating a more social and cultural inclusive city.(Marling 2007)

Design, architecture and even installation art has a leading role to play together with socially inclusive and diverse cultural projects. The planning and design requires a good deal of thought, but Danish cities have a good starting point in the efforts already made. Besides we have a few but interesting cases for inspiration.

The strategy is to have the goals in mind. The goals for the urban qualities are openness, inclusiveness, experience with elements of learning, and an inspiring urban environment based on quality and performative, urban architecture.

### Sources

- Bauman, Zygmunt (2002): *Cities of Hope- Cities of Fear*. I: Thomsen, H.: Future Cities. Fonden Realdania, Copenhagen
- Bourdieu, Pierre (1984): *Distinction: A Social Critique of the Justment of Taste*. Cambridge, MAA: Harvard University Press.
- Gehl, Jan (2000): *Life between buildings*, Copenhagen.
- Haajer, Martin & Reijndorp, Arnold (2001): *In search of new Public Domains*. Nai Press. Rotterdam.
- Harder, Henrik; Nielsen, Thomas Alexander Sick; Bro, Peter; Radisauskas, Nerius (2008): *Experiences from GPS tracking of visitors in Public Parks in Denmark based on GPS technologies* I: J. van Schaick ; S.C. Van Der Spek (ed.) Amsterdam Urbanism on Track: Application of Tracking Technologies in Urbanism.. Amsterdam: IOS Press, 2008.p. 65 - 78.
- Malmö Municipality (2007): *Mötet i Staden*. Malmö.
- Marling, Gitte (2003): *Urban songlines - hverdagslivets drømmespor*. Aalborg University Press
- Marling, Gitte: Why leave the city on holidays? In Marling, Gitte & Zerlang, Martin, *FUN CITY*. Arkitektens Forlag. Copenhagen 2007.
- Marling, Gitte & Juul, Helle(2007): *Byrum i Jylland*. I: Arkitekten vol.1, Copenhagen.
- Marling, Gitte; Kiib, Hans & Jensen, Ole B. (2008): *Designing the Experience City – the role of hybrid cultural Projects*: I: Marling, Gitte (ed.): Designing the experience City. Nordic Journal for Architectural Research vol.1. Trondheim.
- Metz, Tracy: *FUN*. Nai publisher, 2004
- Interviews:
- Interview with Bodil Møller Knudsen, the Middle Age Festival, Horsens 28.08.08

Interview with Esben Danielsen, spokesman for the Roskilde Festival, Roskilde  
16.05.2008  
Interview with Henrik Rasmussen, director of The Roskilde festival, Roskilde  
16.05.2008  
Interview with Leslie Schmidt, Brandts, Odense 04.03.2008  
Interview with Olav de Linde, developer Bazar Fyn, Odense 05.03.2008  
Interview with Poul Jensen, architect, Island's Warf, Copenhagen June 2008  
Interview with Stig L. Andersson, Copenhagen, June 2008



speaker 11

**Silicon Valley as physical form and immaterial symbol**

Birgitte Bundesen Svarre (birgittes@gehlarchitects.dk)

PhD-candidate, Center for Public Space Research, The Royal Academy of Fine Arts, School of Architecture, Copenhagen, Denmark

**Short Biography**

Birgitte Bundesen Svarre is PhD candidate at center for Public Space Research, Royal School of Fine Arts, School of Architecture, Copenhagen. She holds an MA in Modern Culture from the University of Copenhagen. Since June 2008, she holds the position as research coordinator at Gehl Architects.

She is currently finishing her PhD dissertation on urban suburban spaces with Vangede, a Danish suburb, and Silicon Valley as cases. The studies are carried out with focus on the symbolic layers of the city seen in relation to the physical reality.

**Abstract**

The name Silicon Valley is known worldwide as a name, as a brand of a high-tech region. But only few know the location of the region, and even fewer have stories to tell of the architecture of Silicon Valley. Despite the fact that the region does not exist as a geographic entity, several companies are part of a mental geography, so location becomes extremely important despite the absence of dominant physical or geographical structures – or maybe because of the lack of structures. This talk will present examples of urban suburban spaces of Silicon Valley and examine the relation between the physical build form and the symbolic layers.

speaker 12

**Contemporary Public Space - Theory and Method**

Shelley Smith (ssmi@aod.aau.dk)

Ph.d. architect MAA, BAID, research fellow

Center for Public Space Research, The Royal Danish Academy of Fine Arts,  
Copenhagen, Denmark

**Short Biography**

Shelley Smith is an Associate Professor at the Institute of Architecture and Design, Department of Urban Design, at Aalborg University. Following a B.A.A. in Design from Ryerson University in Toronto, and a Bachelor and Masters in Architecture from The Aarhus School of Architecture, Shelley received a Ph.D. in architecture in 2003, specialising in large-scale spaces. She has previously taught and researched at The Aarhus School of Architecture, The Royal Danish Academy of the Arts, School of Architecture, Center for Public Space Research in Denmark, and Humber College, Institute of Technology in Canada. Research interests include urban public space, the perception and experience of contemporary urbanity, urban transformation and airports.

**Abstract**

The goal of the project, Contemporary Public Space - Theory and Method, at The Center for Public Space Research, has as its goal to map the theoretical territory of contemporary public space with the intention of providing a basis from which to discuss the concept of public space in a contemporary architectural and urban context – specifically as it relates to theory and method, to broaden the discussion of the concept of public space to include examples that belong to contemporary urban form and life, and to identify theoretical and methodological positions that qualify and develop public space research at the centre.

speaker 13

**Activity Patterns in Public Space: Differences based on Gender, Age and Group**

Stefan van der Spek (s.c.vanderspek@tudelft.nl )  
Assistant Professor of Urban Design, TU Delft, Faculty of Architecture,  
Department of Urbanism, Julianalaan 132-134, PO BOX 5043, 2600 GA DELFT,  
the Netherlands

**Short biography**

Stefan van der Spek did his Master in Architecture at TU Delft. His final project 'Amstel Intermodal Centre' (1997) resulted in a PhD study within the TRAIL 'Seamless Multimodal Mobility' program, titled: 'Intermodal Transfer Points'. The thesis 'Connectors – the Way beyond Transferring' was published in 2003. Main issue was the design of walkable transport hubs.

After finishing his PhD he became Assistant Professor for the Chair of Urban Design. Today, he is lecturer in the MSc and BSc and researcher in the field of Urban Design, especially Pedestrian Oriented Design. His research focuses on Activity Patterns in Public Space. He participated in European Union funded projects 'Spatial Metro' and 'Connected Cities'. In January 2007 he and a colleague organised an international expert meeting called 'Urbanism on Track'. In 2008 he was editor of the books 'Street-Level Desires: Pedestrian Mobility and the regeneration of the European city centre' (2008, Urbanism/Booksurge) and 'Urbanism on Track – Application of Tracking Technologies in Urbanism' (2008, IOS Press).

**Abstract**

The enhancement of GPS technology enables the use of GPS devices not only as navigation and orientation tools, but also as instruments used to capture travelled routes: as sensors measuring movement on city or regional scale. TU Delft collected data on pedestrian movement in three European cities: *Norwich, Rouen and Koblenz*; in another experiment 15 families were tracked in Almere for one week.

Using a questionnaire the trajectories can be grouped and aggregated on specific trip or personal related information. Hence, insight in specific users and use is possible. This paper will focus on new available patterns based on time weighted point density drawings for *gender, age and group* type.

The presentation will include a comparison between the three cities and an analysis of the patterns within each city.

**Paper:**

**Introduction**

In 2007 TU Delft tracked about 1300 pedestrians using GPS devices in the Central Shopping Districts of three European cities: Norwich, Rouen and Koblenz. In each city the research was carried out from two locations. A special method was developed to visualize and evaluate the results [SLD] using descriptive research. The aggregated data has been used for analysis in different ways:

- 1/ comparison of track logs with other layers of urban information, such as morphology, commercial activities, access points, main attractions and investments [LBS];
- 2/ analysis of point density drawings per (sub)theme per city [SLD];
- 3/ and comparison of point density drawings per (sub)theme [UoT].

Further, the accuracy and value of the used method has been evaluated [SPM] [SENSORS].

Especially the use of subthemes based on the questionnaire offered good insight

in the pedestrian activity for different user groups. So far, only different maps were made based on the themes duration, familiarity, purpose and origin. Since then, new drawings have been made based on three other themes: age, gender and group type. These drawings offer new insight in the activity of pedestrians in the three participating cities. This paper gives an introduction in these results.

### Research question

The main question is if there are differences in spatial patterns based on *age*, *gender* and *group type*. Can we recognize different spatial patterns for these sub sets? Is it possible using visualisation of the track log data to distinguish similarities and differences (a) within a theme, (b) between locations and (c) between cities?

### Method/way of working

The applied method is using descriptive research based on visual analysis. Building on former research experience the visual analysis will be based on point density drawings (ArcGIS : Spatial Analyst). Point density represents the accumulated time people spent on a location. The GPS records it's position at a fixed interval. The number of points indicated the time spent or the intensity of use. But, due to limitations in reception, not all points represent the same amount of time. To make the analysis method more accurate a time weight factor was introduced. The drawings are compared as described in the research question using descriptive research.

### Results

Based on the questions and categories of the questionnaire for each of the six locations sixteen drawings were produced. In total this setup let to 96 drawings. In order to create clean, unpolluted data it was necessary to create sub sets of data. This selection of data resulted in some cases to maps which were insignificant (Table 1).

Table 1: collected data in Norwich, Rouen and Koblenz

	Norwich		Rouen		Koblenz	
Age						
<20	43	<b>7%</b>	15	<b>4%</b>	14	<b>5%</b>
20-40	257	<b>42%</b>	174	<b>42%</b>	110	<b>37%</b>
40-60	268	<b>43%</b>	161	<b>39%</b>	142	<b>48%</b>
60+_	51	<b>8%</b>	65	<b>16%</b>	31	<b>10%</b>
Gender						
Female	415	<b>68%</b>	270	<b>66%</b>	191	<b>65%</b>
Male	194	<b>32%</b>	140	<b>34%</b>	103	<b>35%</b>
Female (A)	106	<b>75%</b>	100	<b>68%</b>	33	<b>73%</b>
Male (A)	36	<b>25%</b>	46	<b>32%</b>	12	<b>27%</b>
Group						
Alone	145	<b>24%</b>	148	<b>36%</b>	46	<b>16%</b>
+partner	219	<b>36%</b>	197	<b>49%</b>	189	<b>64%</b>
+kids	137	<b>22%</b>	54	<b>13%</b>	56	<b>19%</b>
+other	115	<b>19%</b>	7	<b>2%</b>	5	<b>2%</b>
Gender•GROUP						
F+partner	111	<b>52%</b>	124	<b>64%</b>	117	<b>63%</b>

M+partner	102	<b>48%</b>	69	<b>36%</b>	70	<b>37%</b>
F+kids	108	<b>81%</b>	34	<b>63%</b>	38	<b>69%</b>
M+kids	25	<b>19%</b>	20	<b>37%</b>	17	<b>31%</b>

source: Spatial Metro project, research reports v90520

## Outcomes

### AGE

For AGE there are four categories: <20, 20-40, 40-60 and 60+ years. In all cities both 20-40 and 40-60 are the largest categories [SLD] with around 40% of the participants each.

In general the group of less than 20 years has a significantly smaller spatial footprint than the three other categories. There 'action space' is limited to the core of main shopping street(s) and some near by activities (Image 1 -4). The other groups have a more spacious pattern spreading through the city. Significant examples of these differences can be found in Koblenz Löhr Center (Figure 1, Figure 2) and Norwich St. Andrews (Figure 3, Figure 4). Remarkably the older group of 60+ years although being a smaller group doesn't have a smaller spatial pattern.

### GENDER

For GENDER it is obvious there are only two categories: female and male. In all cities the proportion between these categories was similar: 2/3 female and 1/3 male. On the first sight there is not much difference in spatial behaviour. But, these categories only represent the corresponding participant. To provide clean data representing a specific gender only it is necessary to limit the gender comparison within the group ALONE (single visitors). Unfortunately, in many cases this left insignificant data sets. Subsequently, within other groups the same distinction can be made.

In Rouen the spatial patterns of female and male are rather similar (Figure 5, Figure 6). But limiting the data to single visitors it becomes clear women visit other streets and attractions here (Figure 7, Figure 8).

### GROUP

For GROUP four types have been formulated: ALONE (single), PARTNER (couple), KIDS (family) and OTHER (visiting with friends, colleagues). The largest group of participants were the couples ranging from 36 until 64 percent. In Norwich and Rouen the second largest group were the singles, while in Koblenz this was the group with kids.

In all cases the spatial pattern of the couples showed the largest range and spread. The range of the single visitors was clearly limited to the main shopping streets within the city core. An example is Koblenz (Figure 9, Figure 10). The spatial pattern for the families showed a larger pattern than the singles mostly with significant locations such as shopping malls or other activities. An example is Norwich (Figure 11, Figure 12).

## Conclusion

The developed and conducted method clearly delivers insight in differences and similarities in spatial patterns of different (sub) user groups. In all cases repetition of patterns between locations and between cities could be recognised. Two remarks can be made: the significance and the representation of the data. Firstly, a limitation is the significance of data, especially for sub sets. Due to the sub division within themes and categories not all classes result in sufficient base data for drawings such as tracks or participants. A large data set with a huge number of participants is a requirement to start with.

Secondly, the legend and spread of a drawing might influence the visual results. Different ways of conducting the same research should lead to similar outcomes. Diverse amounts of base data such as trajectories or track points might result in different drawings. The visual analysis should be stable, consequent and not depending on minor changes in legend, grid and scale of

the base drawing.

### Outlook

I suggest further research in two fields: drawing techniques and quantitative analysis.

Firstly, it is necessary to get more insight in the influence of drawing techniques for mapping technology on the results. What is the influence of the legend, grid and scale? What is the influence of the amount of base data on the (visual) outcomes?

Secondly, quantitative data can be used to ground the visual outcomes. This can be done on the one hand by calculating duration, (average) speed, distance (length) and area of a trip. Based on the themes and categories a typology can be defined. On the other hand, quantitative data can be used for clustering and building typologies of life style. Especially this feasibility of the data set offers new opportunities in combination with the qualitative, visual data.

### References

- [SLD] Spek, van der S.C. "Tracking pedestrians in historic city centres using GPS". In *Street Level Desires*; Spek, van der S.C., Hoeven, van der F.D., Smit, M.G.J., Eds.; Delft University of Technology Urbanism: Delft, The Netherlands, 2008, pp. 86-111.
- [UoT] Spek, van der S.C. "Spatial Metro: Tracking pedestrians in historic city centres". In *Urbanism on Track*; Schaick, J. van, Spek, S.C. van der, Eds.; IOS Press: Amsterdam, The Netherlands, 2008, pp. 76-99.
- [LBS] Spek, van der S.C. "Spatial Metro: Tracking pedestrians in historic city centres". In *Location Based Services and TeleCartography II*; Gartner, G., Rehl, K., Eds.; Springer Press: Heidelberg, Germany, 2008, pp. 95-116.
- [SENSORS] Spek, S.C. van der, Schaick, J. van, Bois, P.G. de, Haan, A.R. de, "Sensing Human Activity: GPS Tracking". In *Sensors*; Basel, Switzerland, 2009, 1.
- [SPM] Spek, van der S.C. "Tracking Technologies – Truth or Dare?". Conference: *Social Positioning Methods, Tartu, Estonia, 2008*; R. Ahas.; Tartu, Estonia, 2008.

Figure 1: Koblenz, Age, <20

Figure 2: Koblenz, Age, 40-60

Figure 3: Norwich, Age, <20

Figure 4: Norwich, Age, 40-60

Figure 5: Rouen, Gender, Female

Figure 6: Rouen, Gender, Male

Figure 7: Rouen, Gender, Female (single)

Figure 8: Rouen, Gender, Male (Single)

Figure 9: Koblenz, Group, Alone (singles)

Figure 10: Koblenz, Group, +partner (couples)

Figure 11: Norwich, Group, +kids (families)

Figure 12: Norwich, Group, +partner (couples)

**Acknowledgement**

Spatial Metro was co-funded by the European Union Interreg IIIb initiative. Special thanks goes to the Cities of Norwich, Rouen, and Koblenz for cooperating and making the research possible. The research team consisted of Stefan van der Spek, Frank van der Hoeven, Conrad Kickert, Robbert Jan van der Meer, Koen de Boo, Remco de Haan, Frank den Hartog and Glenn Kustermans

speaker 14

**Public Space between Water Networks: The Ancient City of Suzhou**

Chen Yong (ch\_yong2002@yahoo.com.cn )

Architect Ph.D., Associate Professor, Tongji University, Shanghai, China

**Short Biography**

At the moment Chen Yong is a guest researcher at The Center for Public Space Research, Realdania Research, School of Architecture, The Royal Academy in Copenhagen. Chen Yong is currently working on a comparative study between Chinese and Danish notions of public urban space, and the organization and use of urban public space.

**Abstract** During the long periods of interaction with the natural environment, many Chinese cities with river networks have developed unique spatial forms, living patterns and cultural dispositions. The study intends to examine the public space between water networks of these cities, setting the ancient city Suzhou as a special case. It begins with a review of the historical evolution of the river networks in Suzhou City , followed by an explanation of the origin of the main idea of urban planning for Suzhou City , which has centered on the river networks. The study further reveals the forming pattern, historical layout and morphological characters of public space between water networks. Based on the above conclusions, the study eventually makes suggestions on the practice that can be adopted to protect and develop the public space between water networks in Suzhou .

**Paper:**

Most Chinese cities with water networks have developed their distinctive and diversified morphological features only after hundreds of years of evolution, receiving influences from both the natural environment and human activities, the latter of which particularly include political, social and economic activities, and urban planning. This paper attempts to make a case study on the city Suzhou in ancient times. It intends to examine the public space between water networks of the ancient city of Suzhou, which have developed unique spatial forms, living patterns and cultural dispositions.

**1. Pattern of City Construction**

Cities, with water networks in China, mostly located near the East Sea and the Yangtze River. Particularly, in the east part of Taihu Lake district, where is a low-lying piece of land through which the water flows into the sea. Cities in this area are surrounded by many crisscrosses of rivers and lakes. Ever since the remote ancient times, people living in this dangerous, humid and flood-stricken area had made every effort to combat flood. In the meantime, they had accumulated every bit of knowledge on water conservancy. When the well system was adopted in the Shang period over 3000 years ago, there were already irrigation canals and ditches. By the time of the western Zhou period, they had been further developed and had six different categories according to the size of the canals. The ancient city of Suzhou was constructed around 2500 years ago. By that time, people has already obtained certain knowledge of hydraulic engineering, such as directing water into the city, digging trenches and building floodgates. With the meticulously planning, it initiated a new construction pattern of city in China, therefore Suzhou became the first typical water city in



the Chinese history. After that, many other cities or towns in China, with water networks, such as Shaoxin, Wuxi, Shanghai, Jiading, Songjiang, etc were built up based on the similar pattern.

## 2. Water Networks and Urban Spatial Transformation

Suzhou was primarily the capital of the State of Wu. In 514 B.C., King Helu reconstructed this capital city and laid a solid foundation for it. The city was composed of three layers of structures respectively named as the Palace City, the Big City, and the Outer City. On the each side of the Big City, there were two pairs of water and land gates. The water gates were designed as such to enable water to be directed into the city or drained out of it. There were moats outside the Palace City as well. A water network in its earliest form might have been formulated around the eight water gates and the moats outside the Palace City.

During the Warring States period (475-221 B.C.), Lord Chunshen proposed to dig out many small waterways underneath the city so that there should be water running through the whole city. His suggestion was taken and put into effect. Due to this fashion of road and canal construction that involved a lot of people --- “the wise led and the able followed”, the pattern of the city like that of a double-chessboard (with the city structure on the land comparing to one chessboard, while the shape of the waterways to the other chessboard) was basically established by the time of the Tang period (618 -907 A.D.).

The Song period (960-1279 A.D.) is marked as a turning point in Chinese history of city construction as well as the maturational stage in the structure development of the ancient city of Suzhou. With the Chinese medieval urban revolution, the old enclosed ward system of urban market and residence have been replaced by shopping streets of localized business and planned neighborhoods spatially organized and demarcated with streets and alleys, which brought a true sense of “public space” into the city. From the *Map of the Pingjiang Area* which was drawn in the Song period, we can find the city was in the shape of an irregular rectangle, the perimeter of which was about 24 kilometers and surrounded by high city walls. The city had five pairs of land gates and water gates. The watercourse in the city amounted to 82 kilometers in length, with 6 big canals flowing from the north to the south and 14 others flowing from the west to the east. Besides, a lot more branches interwove with the big canals, and together formed the water networks.

Ever since the Ming period (1368-1644 A.D.), Suzhou has been an important metropolis with well-developed handicraft industry, business and trade, which resulted in that the urban life became more intricate and diversified. Due to its short distance away from the Grand Canal (The Canal extended from the present day Beijing downward to the present-day Hangzhou), the northwestern part of the city became a new commercial center which gathered a large number of merchants. At the end of the Ming period, the watercourse within Suzhou City amounted to 87-92 kilometers in total; therefore, it was longer than any other time in Suzhou history. Since the Qing period (1616 -1911 A.D.), the canals, especially those in the flourishing northwestern part of the city, had become polluted, silted up and even filled up in total as a result of the enormous pressure on those areas that was brought about by the

unprecedented upsurge of population at that time, the relaxation of government control, and the rapid economic growth from the mid-Ming onward. Nowadays there are only 25 kilometers in total remained in the ancient city of Suzhou.

### **3. Structure of Water Networks**

The water networks of the ancient city are composed of three layers of structures: the moat, the artery system and the anabranch system. The moat, with the width of about 50-70 meters, is consisted of two loops and closely surrounds the city. The artery system is very important to the whole city. In this system, three canals flow from the west to the east and four others flow from the north to the south, each of these canals are over 10 meters wide. The artery system is always managed and dredged up by the government so it is also called the "government canal". In the anabranch system, many canals with the width around 6 meters orientate from west to east are derived from the artery canal. And they connect thousands of families over the whole city. The water system takes many functions such as drainage, transportation, defense, living, firefighting, and decoration of the landscapes etc. The water gate and the weir hinge to adjust the water of the whole city and the barriers are used to prevent floods from overrunning the city.

### **4. Influence on Urban Life**

The water networks were gradually forged in coordination with the division of the city area into the residential wards, the walled market quarters, government offices and other institutions. On the other hand, the water networks also helped their disintegration, and witnessed the medieval urban life transformation. Consequently, commercial and residential activities, and thus shops and houses, were no longer segregated from each other, but rather mingled in the web of city canals and streets. From the *Map of the Pingjiang Area*, we can imagine that all residents of and around the city could freely participate in urban space for daily activities. The canals and streets then fully represented the richness of the urban features of the city of Suzhou and at the same time reflected the different modes of living in their corresponding districts. Handicraftsmen of the same trade often worked together and thus gave rise to specialized workshop lanes. Many specialized streets and entertainment facilities like teahouses and pubs came into being along the waterfront. The commercial center with the names 'Pingquan Fang' and 'Xishi Fang', born of the former Wu Market, also further developed on the water networks in the northwest of the inner city. In addition, the main public facilities, such as the cultural and educational center, hotels, entertainment facilities, temples, post-houses, management offices etc were mostly built next to water and were combined with the water networks organically.

Since the Ming period, the most urbanized area in Suzhou was found outside the city gates, particularly the waterfront in northwestern Chang Gate. The waterfront extended from Chang Gate westward along the Grand Canals to Maple Bridge and around Xu Gate there were busy areas of trade and commerce. The concentration of regional and interregional trade in this area then led to the flourishing of many other city activities. Elegant restaurants, hotels, teahouse, pubs, theaters, and the like, massed along the canal stretching from Chang Gate to Tiger Hill in the west. More sightseer or pleasure

strollers from the city and its surrounding towns and villages rather than trader were attracted to the waterfront by the theatre, noise, color, and bustle, especially during the annual festivals. These commercial waterfronts afforded all sections of the people of Suzhou a notable venue where various economic, social, and religious activities were conducted, and thus they functioned as a practical link between the residents of different class, profession, and place of residence. So it was an interesting atmospheric contrast between the two domains separated by the city wall: the tranquility and lush green trees inside and the bustling and motley buildings, boats, goods, shop signs, and trader outside.

### **5. Influence on Everyday Architecture**

The life of the local residents could not be separated from the water networks. The places that were connected by the water networks were also the places that were crowded with the residents. The water networks brought them the living water and the producing water (the family-based industry such as silk plaiting, printing and dyeing and paper making etc). The water networks also took away the city's sewage. It was applied that economic and reasonable in ancient times when there was no industrial pollution the velocity of flow and flux of the canal was adequate. "People in Suzhou could not live without the boat for even one day." The canal was also the main boat transportation for residents. The residents had adequate live materials and needn't be worry about the burden of the materials. Due to the benefit of convenient daily use, firefighting, waterborne transport, and flood control etc, the water networks could be acknowledged as an essential part of everyday architecture in Suzhou. Many small-scaled sites located like beads on a cord along the busy routes between the canals and land areas, such as bridges, quays, harbors, stairs to water, tea houses, pubs and shops etc, which constituted the local daily living and meeting space system. Some busy routes were irregular, short, narrow, and enclosed and thus experienced progressively. There were also trees and urban furniture in the linear open space which were always used as family outdoor rooms, and social and economic activities were carried out with varied intensity.

### **.6. Influence on City Fabric**

Combined tightly with the streets and buildings, the water networks derived many residential streets which had the pattern of "streets front and canals back, canals and streets surround". The main lines of the streets were always the south-north canals and the main streets. The distance between two main lines was relatively far, about 200 to 400 meters. The branch lines of the streets were always the east-west canals and alleys. The distance between two branch lines was relatively small, about 60 to 80 meters. Sometimes there were narrow south-north alleys which were only 1 meters wide in the residential blocks between the east-west alleys and canals within the streets. The distance between two narrow alleys was 55 to 60 meters and could contain 4 to 5 Heyuans (a basic unit of Chinese tenement). Most tenements had a good orientation and were vertical to the east-west alleys. The east-west alleys were rather quiet and private street places which were about 2 to 4 meters wide and the canals were very convenient for living and transportation. The south-north direction tenements stood side by side tightly. The width of each room was small so that as many inhabitants as possible could acquire the convenience of

“front street and back canal, both water way and land way can arrive”. These tenements comprised continual groups. The high-dense combination manner of “front street and back canal” was an economical and organic way of street layout. It was to say that on the edge of the streets along the main canals and the main streets there were also some small houses which faced the streets against the canal and extended along the canal. The streets were rather wide and busy, which were about 3 to 6 meters wide. There were so many people passing by everyday that the streets became marketplaces gradually. The houses which extended along the main streets developed into the mode of “shop front and house back” or “house up and shop down”. The small houses with different facades used for varied uses on tiny plots as well as the variety of uses produced a rich visual environment. The street was so attractive that all requirements such as food and other essential goods as well as recreation were obtained. There was also access for water transportation on the back of the house or between the houses.

The water networks of the ancient city of Suzhou remind us of an era when good design was instinctive and cities had a rich urban life. We cannot bring back the past, but we can learn from it. An older public space between water networks that is an organic part of its community usually serves present needs better than a new space ordained by a planner or developer. Cities are learning to preserve, improve and adapt these spaces they have.

speaker 15

**Public Space as a catalyst for change**

Kristine Samson, Industrial PhD fellow, and Helle Juul, creative director  
JUULFROST Architects, RESEARCH + COMMUNICATION, Denmark

**Abstract**

The project; Public Space as a Catalyst for Change covers how the public space as a strategy for development, transformation and change of cities can be approached as a catalyst for the development of 'the good city' – architecturally, socially and culturally. The project focuses on both theoretical studies and the practical usage of methods. We focus on public spaces as transformers for change regarding culture, lifestyle, gentrification, and as attractors for mixed use.

The project is financed by Realdania and placed at JUULFROST Architects, Copenhagen.

The City life has changed. It has become more global, more multicultural and more orientated towards tourism. City people have developed new patterns of life with a more active use of the cities many offers and meeting places. City people place still higher demands to the qualities of the cities and the architectural disposition of thoroughfares, city spaces and buildings have great impact on the activities that a city can contain. The un-committing communities of experiences are used by the inhabitants as never before, and a multiplicity of non formal meeting places – that include everything from coffeehouses and restaurants to music venues and community centres – have seen the light of day.

City life is characterised by flows and movements. You stroll through the city as a flaneur, you consume and become consumed by the city, enjoy experiences and create life. The city is characterised by streams, networks, relations, interactions and connections – all of which are in a state of flux in relationship to each other. New experiences and unsuspected situations emerge all the time. Earlier the fight for the city space concerned regaining of the city space from the cars and pushing the commercial interests forwards. Today the focus is on creating city spaces that enhance the dimension of experience. The city space should be mentally and socially stimulating to the users and should be able to contain the diversity of the city by creating spaces, where the cities different cultures can meet and interact. The global change focuses on a new type of culture, which position in the planning process has to be secured. We see the diversity and the other as a condition we cannot ignore. The lecture will further elaborate on this theme.

**Paper:**

Urban space as a catalyst for change identifies how urban spaces can be seen as catalysts for the development of "the good city" – socially, culturally and architecturally. The project takes its point of departure in theoretical studies and analytic methods. We look at urban spaces as parameters for change in relation to culture, lifeforms, gentrification, and as attractors for different segments of citizens. 'Urban Space as a Catalyst for Change' is an interdisciplinary project, since urban spaces do not only consist of buildings but also people, moods and relations. By uniting an architectural understanding of form with a sociological understanding of human behaviour, we are able to analyze urban spaces holistically. We aim at developing a strategic approach where what is valuable to various people is prioritized, thus not only anchoring the urban spaces in the realm of the city but also in the realm of society.

**URBAN SPACE IN A NEW FRAMEWORK**

Due to change of perspective in city life, we need new methods and frameworks for the understanding of the city and its inherent multiplicity of experiences and

transformations.

The city has become more global, more multicultural and more orientated towards tourism. In this perspective new demands for specific urban qualities are called for. City people have developed new life patterns with a more active use of the cities. Thus, the demand for meeting places and new urban scenes for interchange of perspectives, for learning and the forming of life are vital qualities of the future development of the urban realm. The disposition of public spaces, of passages, recreational settings and buildings have great impact on the activities and the experience of the city. Informal communities and affective, performative spaces can therefore be used to attract the inhabitants. Open, informal and inclusive spaces can attract a wide range of life forms and enable people to meet across and despite differences. Urban space has in other words all the potentials for the creating of a vital urbanity where affective spaces produces new flows and experiences. Thus, new experiences and unplanned situations emerge all the time. Today the focus is on creating city spaces that enhance the dimension of experience.

The project *Urban Space as a Catalyst for Change* proposes a new approach to the planning and development taking the present conditions in the experience based city into considerations by suggesting new strategies and approaches to urban space. *Urban space as a Catalyst for Change* works with the idea that an aesthetical and sensory oriented approach is called for due to new demands in the city.

## PERFORMATIVE SPACES IN DUBLIN AND BARCELONA



The article gives, through a short presentation of the case studies of Grand Canal Plaza in Dublin Docklands and the Jardins de la Torre de les Aigües, ProEixample in Barcelona, an introduction to a new set of thought in urban planning. The two case studies show a sensorial and strategic approach to urban space, where aesthetical features are used to attract, distribute and orient urban flows.

The use of the spatial and bodily affective shaping of the physical environment is used to attract, distribute and integrate the visitor in the space. Thus, the design invites the user to integrate and perform on its stage as a way of framing interaction.

## STRATEGIC TOOLS

By introducing well known urban theories from the 20<sup>th</sup> Century in the framework of the city of today, we will propose urban strategies working as

catalysts in urban space.

While the urban sociologist Richard Sennett calls for meeting places to reinstall the public sphere, Zygmund Bauman shows that the fluid modernity, with its inherent feelings of anxiety and fears, may be better captured through the development of temporary spaces and flexible, informal meeting places. Similarly, Umberto Eco, Kevin Lynch and Jane Jacobs focus on the means by which the citizens can feel included and welcome and identify and engage themselves in the city.

On this theoretical background we propose strategic tools such as *Performativity, mnemonics, parallel strategies, acupuncture and zoning* in the future development and planning of urban space.

For instance, Performativity is a strategic tool implying the inclusion of an action, an event or architectural acupuncture in urban space, with the intent to influence – permanently or temporary – the surrounding urban space. In other words, performativity is a tool to initiate processes in urban space. The performative intervention can be the use of physical or social elements or the creation of a new identity.

#### **A NEW APPROACH TO PLANNING – FROM FUNCTIONALITY TO URBAN POTENTIALS**

This brings us to a new understanding of planning. The use of urban architecture and design is in a strategic perspective dealing with processes as strategic planning not merely as material development.

Planning is no longer a form imposed upon urban matter, but is rather a strategic tool to be used in the broader perspective of urban transformation processes.

The planner is no longer the administrator of physical development, but the one looking for potentials and connections in the urban realm.

Thus, strategic tools for the development of urban space can help the planner to initiate urban processes, as well as defining him in a new role. The planner has become the holistic, proactive and strategic coordinator of urban processes.



speaker 16

**Bo Grönlund bo.gronlund@karch.dk**

Associate professor, The Royal Danish Academy of Fine Arts, School of Architecture  
Institute for Planning, Philip de Langes Allé 10, DK 1435 Copenhagen, Denmark  
Mobile +45 40525181

**Short Biography:**

Bo Grönlund has been with The Royal Danish Academy of Fine Arts, School of Architecture since 1971. He has an architectural degree from Chalmers University and a research education from Nordplan in Stockholm. On the side Bo has been working for planning consultancy firms with master planning and economic planning, with the Nordic Council of Ministers on urban studies, and with Danish Standards and others on crime prevention through urban design. For 15 years he taught Urban Design together with Jan Gehl, and in later years the focus has been on urban planning together with Jens Kvorning in the Centre for Urbanism, e.g. coordination of the masters program on Strategic Urban Planning.

An overview of Bo's works can be found in the following places:

Own homepage <http://bo.gronlund.homepage.dk>

READ [http://www.re-ad.dk/research/groenlund\\_bo\(2046\)/](http://www.re-ad.dk/research/groenlund_bo(2046)/)

Centre for Urbanism: <http://www.karch.dk/cbp/Menu/Kort+om+Centret>

**Abstract:**

According to International Federation of Housing and Planning the majority of the population of the planet are now urban. That definition of the urban, however, is based on zombie categories, to speak as Ulrich Beck. Urbanization and urban areas as we normally understand them are concepts of 'the first modernity'. Nowadays, in 'the second modernity', we have instead to ask: where in the city do you really find urbanity? A large part of what statistically is called urban areas lack urban quality and visible urban life. In the space syntax approach urbanity is basically understood as co-presence of people in streets and squares and movement economy. About 18 years ago, Bill Hillier gave a definition of urbanity as 'the virtual community' – the 'yet to become' sociality of strangers sharing in the streets. The broader field of Urban Design considers a large range of urban and design issues, and adds more complexity to the question of urbanity. Most urban design 'theory' is basically normative though and non-coherent from a theoretical point of view. Henri Lefebvre and Richard Sennett take on some more fundamental issues with their focus on the importance of difference, but the implications for design is far from clear. My short presentation will comment on this and then try to add to the notion of urbanity in two ways: First by proposing a three level model for co-presence, second by proposing a fourfold table of some empirically observable urbanity including not only aspects related to co-presence of people but also some aspects concerning human relations to artefacts.



speaker 17

**Simulating spatial behaviour**

Hans Skov-Petersen (hsp@life.ku.dk)

Senior Researcher, Forest & Landscape Denmark, Faculty of Life Sciences,  
University of Copenhagen, Denmark

Bernhard Snizek (bs@koenigsnizek.org)

Technical Director, metascales - KÖNIG/SNIZEK

**Short Biography**

Hans Skov-Petersen - Ph.D. in Geography (GIS and planning) - is Senior Researcher and GIS-coordinator of Forest and Landscape Denmark which is an institute under University of Copenhagen. He is responsible for the teaching curriculum in the field of GIS. Hans' main research interests include: GIS-based models of humans' spatial behaviour, Agent based simulation models, Indicators of urban environment, GIS in relation physical planning processes and decision making, Inaccuracy of geodata and spatial models and GIS-based communication.

Bernhard Snizek, MSc in Landscape Architecture is founder of metascales and co-founder of and technical director at KÖNIG/SNIZEK. He works mostly in the fields of applied time/space-enabled content management systems, cultural heritage management systems and simulation of complex processes in time and space.

**Abstract**

Empirical assessment of human behaviour – by means of questionnaire surveys, automatic counters, GPS tracking etc. – provides information about the individuals or locations monitored. It provides a fraction of the picture of the entire populations' behaviour. If the response of an entire system of populations is of interest - and every individual cannot be monitored – simulated individuals have to be applied. A major challenge is to obtain behavioural parameters from monitoring campaigns that enable construction of software robots (agents) which - in a cyber world - can behave as their real world counterparts. The paper will focus on the way behavioural parameters can be revealed from monitoring activities and further applied to agent-based simulation. In specific, a framework for analysis of GPS itineraries in terms individuals' choice behaviour will be proposed.

**Paper:**

**Introduction**

Autonomous agents are 'creatures' that exist in spatial computer-based worlds. They can move, make decisions, collect information, and respond on other agents all due to pre-programmed objectives, abilities and preferences. Simulation-models based on autonomous agents are well suited to assess phenomena where the object of modelling is changing attitude and behaviour when moving in space.

Many methods have been developed for studying human behaviour and activities. A main distinction is between the qualitative and the quantitative approaches. Cutting a lengthy discussion maybe too short, qualitative methods are superior in cases where too little is known about the fundamental values, motivations and rationales of given social or behavioural situation. On the other hand a quantitative approach is required if the achieved information is to be used as model-parameters. This of course demands that the set of parameters to measure is known *a priori*, either from existing knowledge or by qualitative assessments. A fundamental shortage of the quantitative methods obviously means that only the effects of included parameters can be assessed. The quantitative methods applied most frequently aim at collection of general information about the activities being performed by users (on the demand side) or of facilities (on the supply side). Users can be the general population of an

area or a given group of people. Facilities can be a more or less tightly defined set of sites where the activities takes place. Results often address average figures of activities – distances travelled, frequencies of activities, amount of consumption, time spent etc. Only in rarer cases the rationales of the (spatial) choices and the movement patterns are in focus.

GPS-based registration provides a long range of new options for monitoring human behaviour. To this day most of the analytic emphasis has been put on assessment of the load of activity on 'places' – whether being pedestrian paths'. Urban squares, bicycle lanes, or road segments. Less focus has been set aside for examination of the behaviour of the individuals. Such study could include investigation of choices of route, attitude to different route attributes etc. Among applications of such choice parameters is configuration of agent-based models of pedestrians and cyclists.

It is the objective of the paper to discuss methods being used at present for the assessment of human behaviour with respect to the usability in disaggregated models – including agent-based models. The paper concludes by suggesting a framework for analysis of human itineraries recorded by GPS.

### **Revealed vs. stated preferences and behaviour**

When assessing human behaviour there are two basic ways of doing it: Directly to ask individuals about their activities, preferences, wishes or motivations (in the rest of this paper referred to as '*stating techniques*') or to see what people do and extract the information required (referred to as '*revealing techniques*'). This forms two distinctly different methods for assessing human behaviour and accordingly the following mode of analysis and interpretation. The most direct in terms of user or respondent-involvement, is the approach of *stated preference, behaviour, or Willingness To Pay*. Individual people are asked about e.g. their actual behaviour ('Which shops did you frequent during your last visit to town?', preference ('Do you like dress A or dress B?'), or willingness to pay ('How much would you pay for...?'). Alternatively, value or choice parameters can be obtained by registration of the actual activities performed by humans in the urban environment. *Revealed preference, activity, or willingness to pay* as these types of studies are called, can be carried out e.g. by counting the number of parked cars in parking complexes, the number of visitors to given amenities, or by registration of changes in value of real estate as a function of access to urban services. Louviere and Timmermans (1990) provide a brief introduction to the capabilities of the stated and revealed preference studies. Some writers refer to the same two types of registration as *direct vs. indirect* measurement of values (Smith 1989).

Choices made in complex situations can be assessed by Conjoint Stated Preference (CSP) techniques. In its simplest form different (levels of) statements about different issues are combined in a single statement. Respondents are asked to rank a limited subset of the combined statements. The technique is used by Goossen and Langers (2000) to assess the perceived quality of different landscape types. The result of the entire survey can be used to assess preferences for individual issues, related to other issues. On this basis given a set of complex choices, the probability of choosing one or the other choice, can be calculated and hereby used in the simulation. In relation to conjoint choice experiments stated techniques are applied more frequently than revealed. Revealing information about local choices involves direct registration of individual, spatial behaviour. In the present context the most prominent method for registration of itineraries is *GPS-tracking*.

### **Agent based simulation of behaviour**

One way to define the concept of 'models' – of which agent-based simulation models is a sub-category – is that they are idealized representations that takes up less 'space' than the phenomena they

represent. The space can be in terms of concepts, data, processes, etc. Which components to include or excluded, and to which degree of detail they are represented will – of course – be a matter of the phenomena modeled and the issues in focus. A non-exhaustive list of reasons to embark on modeling includes:

- By simplification and idealization to focus on issues of interest and thereby gain knowledge and insight.
- To compensate for lack of data (for instance in situations where data from remote locations are hard or expensive to obtain)
- To test possible future situations (construction of scenarios)
- To use the models' idealized image of real-world phenomena as a platform for communication including environmental learning situations, behavior studies in cyber space, participatory planning processes etc.

Agent-based models are constituted by the individual actors of the system represented. A premises is that it is the behavior, abilities, preferences and motivations of a set of individual components that is know and that it the 'reaction' of the 'system' that is of interest. For instance we assume to know the probability by which campsites will be frequented by visitors from a given entry point; the 'systems response' we are looking for could be at which locations of the path network a high frequency of encounters will take place.

The agents are autonomous because once they are programmed to move around the landscape like software robots. The agents can gather data from their environment make decisions based on the information and make decisions in accordance. Each individual agent has it's own physical mobility, sensory, and cognitive capabilities. This results in behavior that mimics real humans. The process of building an agent is iterative and combines knowledge derived from empirical data with the theoretic models of behavior. By continuing to program knowledge and rules into the agent, watching the behavior resulting from these rules and comparing it to what is known about actual behavior, a rich and complex set of behaviors emerge. This type of simulation is compelling because it is impossible to predict the behavior of any single agent in the simulation, but by observing the interactions between agents it is possible to draw conclusions that are impossible using any other analytical process (Gimblett 2002).

#### **A framework for behavioural analysis of GPS itineraries**

In the following paragraph a framework for analysis of GPS itineraries in terms of individual behaviour will be proposed. In the present context a single itinerary (or tour) is defined as a temporal sequence of locations (points) performed by an individual during a specified period of time (for instance a day) and/or within a given spatial domain (for instance from leaving home to return).

After an initiate stage filtering - to remove possible points that considered senseless in the present context - the first stage of the analysis of a recorded itinerary will be to identify locations at which the individual has made a 'stop' along the tour. A stop can be defined as a (set of) points where the speed has been below a given threshold. The speed at a registration point can be assessed by analysing the distance in both time and space to its (temporally) surrounding registrations. After identification of 'stops' the itinerary can be divided into sub-tours (routes). Accordingly a 'route' is defined by the set of points registered along the movement between two stops. Points along a route are ordered in time, which provides the direction of (movement along) the route.

Once routes have been identified the first step of analysis is extraction of a set of parameters related to the routes as a whole (route indexes). Such indexes include simple measures like length and time consumption (and hereby average speed), and more advanced derivatives such as average turning and angle speed heterogeneity. Further the length of routes can be assessed relative

to the shortest possible path and the Euclidian distance between the stops. In the latter case identification of a roundtrip (where the start- and end-stops coincides) provides a special case. The route indexes can, in addition to supplementary information obtained by for instance interviews, be applied to classification of the routes.

In this context, the spatial choices made along the track are core components of behaviour. Such choices can be based on preferences, repellents, needs, abilities etc. Accordingly the next step will be to identify locations where spatial choices (e.g. which way to go) were made. In principle choices are made at any location recorded but, to limit the number of locations to analyse, a set of specifically focal decision locations can be identified. For individuals, who travel along a road network, the junctions (nodes) of the network can serve as such decision locations. Choices are made from sets of options. At a node, the optional choices are the edges connected to it. To analyse the choice process (preferences, repellents etc.) it is not enough to assess the attributes of the choice that was actually made. No choice is made in a void. The attributes of a choice have to be considered in conjunction to the options that were deselected. A study of such Conjoint Revealed Preferences (CRB) can be performed using the same statistical techniques that are applied in a CSP (as mentioned above). Example of such data for analysis of a choice process along a track is found in table 1.

Table 1: Example choice data set for a single track/individual. Traffic load, vegetation and direction are classified, whereas the relation of the options and the shortest possible path is given as a ratio. The choice that was actually made at each choice location is indicated in the last column.

Identification		Choice attributes				Choice
Choice location	Edge ID	1: Traffic load	2: Vegetation	3: Direction	4: Shortest path	
1	23	1	1	1	1.21	0
1	26	1	2	2	1.65	1
1	12	2	2	2	1.00	0
1	89	3	2	3	2.30	0
2	26	1	2	2	1.12	1
2	11	1	1	1	1.00	0
2	17	3	3	3	1.43	0
3	17	3	3	3	1.00	0
3	44	3	3	1	2.70	1
Etc.						

It appears in table 1 that both 'local' variables (which can be perceived directly from the environment around the choice location) and 'global' variables (which are attributes of the entire optional route the choice option leads to). Examples of local variables in table 1 are traffic load, vegetation, and direction. Whereas choices considering which option will result in the overall shortest path to the destination are 'global' by nature. In general local variables requires no a priori knowledge about the environment whereas global variables requires knowledge about the system as a whole (either due to familiarity or for instance because a map of the area is available).

The choice data sets can be analyzed by use of random utility theory. The parameters of each preference variables can be revealed by the same statistical methods frequently used in choice experiments based on stated techniques (e.g. Adamowicz et al., 1994). The immediate result will be a set of parameters expressing the 'respondents' relative preference with respect to the different attributes. I.e. whereas normal unidimentional preference studies only assess respondent' preference for a single attribute, it is now possible to evaluate preferences of all attributes, relative to each other. Where it for example, in a

unidimensional study, would be possible evaluate respondents preference for vegetation along roads and path's, it would, in a conjoint study like the one proposed, be possible to analyze to which extent trees and bushes is preferred, considering the addition travel distance following a green route would 'cost'.

Parameters revealed from a conjoint choice experiment can be applied to agent-based models. The parameters can – by investigation of the options available (as constituted by the attributes of the options (e.g. possible routes from the present location)) – be applied as probabilities of the different choices to be made. At mode run-time the actual choice will be based on the probabilities and a computer generated random number.

### References

Adamowicz, V., Louviere, J., Williams, M. 1994. Combining revealed and stated preference methods for valuing environmental amenities, *J. Environ. Econ. & Man.* 26, 271-292

Gimblett, H.,R. 2002. Integreation of geographic informations ysstems and agent-based technologies for modelling and simulating social and ecological phenomena. In Gimblett, H.R. (ed.), 2002. *Integrating Geographic Information Systems and Agent-based Modelling Techniques*. Oxford university Press.

Gimblett, R. and Skov-Petersen, H. (eds.). 2008. *Monitoring, Simulation, and Management of Visitor Landscapes*, The University of Arizona Press.449 pp.

Goossen; M. and Langers, F. 1999. Assessing quality of rural landscape in the Netherlands: Finding the most important indicators for recreation. *Landscape and Urban Planing*. Elsevier. Pp 241-251.

Smith, S.L.J. 1989. *Tourism analysis. A handbook*. Longmann Scientific and Technical.

speaker 18

**Qualitative methods for exploring use, understanding and preferences for urban space**

Gertrud Jørgensen (gej@life.ku.dk) Professor, Forest & Landscape Denmark, University of Copenhagen

Trine Agervig Carstensen (tac@life.ku.dk), Assistant professor, Forest & Landscape Denmark, University of Copenhagen

**Paper:**

If one wants to study preferences and use of urban space – with a view to preserving, managing or changing the same spaces or to extract generalised knowledge about the qualities of space – there are various ways to go. Quantitative methods to reveal stated preferences, e.g. in the form of mailed surveys or ‘post use’ interviews (e.g. Koch & Jensen), can be very effective for obtaining information that is useful in management of public space and which – because the results are clear and quantitative – serves policy makers well (Jensen). The possibility to use GIS- and GPS based methods to reveal the actual behaviour in space of many people adds considerably to the potentials of quantitative methods in use and spatial behaviour.

Qualitative methods for the study of spatial behaviour are often used for understanding rather than producing unequivocal results – often in studies focused on meaning of place rather than of preferences and behaviour in space.

Surveys ask ‘what’ and ‘how many’, GIS-based methods add ‘where’, while the qualitative methods ask ‘how’ and ‘why’. A methodology that is informed by a combination of qualitative and quantitative data is preferable in many cases.

In this paper we shall focus on qualitative methods and their potentials in research on spatial behaviour, preferences, and attachment of meaning to specific places. Experience and understanding of space is closely connected to our body and its senses (Merleau-Ponty). Therefore methods that include visual and tactile experiences will be in focus here. But, as we will argue, such data must be interpreted verbally in order to “make sense”, first and foremost for the researcher who experiences “second hand”, but often also for the informant.

**The process of producing qualitative data**

Qualitative and quantitative methods differ not only in their potential for producing knowledge. It is well known of course that the ways of generalizations is widely different, but also the types of data, and the procedure and production of data differ widely. Production of qualitative data involves not only the researcher but also the informants deeply in what can become very emotional situations. Ethical considerations weigh heavily, and for some methods not only the preparation and interpretation of data is heavy work, but also the actual data collections require hard work, perseverance and even sometimes courage.

**Combining qualitative methods**

Combining various well-known qualitative methods offers an advantage by showing various and distinct ways to access knowledge. As Howard Gardner shows, different ways of learning and different intelligences exist side by side and differ from human to human. When using children as informants it is obvious that they express their experience in many ways.

**Groups – to create a dynamic scene (or battlefield)**

A study of everyday practises and preferences for urban space among families with children (Carstensen 2007) a methodology of ‘interviews with devices’ (Whatmore) was conducted. Two adults (parents) were interviewed about their common daily life i.e. with introduction of mapping (reading and drawing) and selecting photos. In group interviews the introduction of photos as well



as other devices serves as a shift of rhythm that allows a fine group dynamic. Verbally dominating informants are disturbed and interrupted as other types of knowledge are being produced. Among adults it makes sense to apply various qualitative methods in order to investigate spatial practise, experience, and preferences.

**Children – not always verbally strong – and easy to bore:**

A project investigating how children (5 to 12 years) experience urban space in daily life applied a wide range of qualitative methods: guided tours, walk-and-talk, drawing, mapping, time-charts, photographing (Jensen & Jørgensen 2001). The encounter with the child was vaguely structured into themes of research and investigated in no fixed order. Childrens' narratives were complex and with a certain logic. Children are easily made reluctant informants if they aren't met with an appropriate attention and sensitivity. By investigating the research themes through various methods, knowledge was produced only when the child was interested and engaged and in that way the child was respected in its own right and competences.

**Photos to avoid bias and bring in new typologies – but combined with words:**

In a study focused on residents assessment of small businesses in residential neighbourhoods (Jørgensen 1992), sorting of picture already prepared by the researcher made it possible to discuss the question in the interviews without bringing in verbal information from the start that may have biased the interview. Pictures – visual reminders of well-known places and urban functions bereft of any verbal bias – started the discussion from afresh, and a sorting of pictures produced interesting typologies, without much use of words. However, this could not stand alone; the verbal comments from the informants are necessary data for answering Why questions.

**Photos call deep emotions and illustrate eternal themes:**

Similarly a study of rural residents' attachment to their own plot of land (Højring 2005) asked informants to take photos from their land over a period. Presenting the photos was part of a follow-up interview. The photos in themselves are interesting – some even very beautiful – but only in the verbal interpretation do they awake the deep attachment and feelings connected to the places – and unpack them for inspection by the researcher. Visual data seem to remind us of feelings that we can afterwards let out in the world.

**Visual methodology**

In social sciences there is a growing interest in using visual methods. In recent literature visual method are both given a special position that requires distinct methodological considerations (e.g. Banks 2007; Pink 2007), and considered as a part of a wider methodological strategy (e.g. Atkinson, Delamont & Housley 2008; Crang & Cook 2008). 'Visual methods' refers to a wide range of distinct technologies and visual materials. Our paper focuses on photos: how they are produced by informants and researchers and how they are used in the production of knowledge about quality of urban space and spatial practises. The paper will elaborate on four methodological statements deriving from our research experience using photos and visual methods. By discussing and illustrating by examples we describe the strengths, weaknesses, complications and potentials in visual methods as follows: Firstly photos are well-working 'vessels' for conversation and crucial for verbalising urban quality. Secondly that all photo are a product of a perspective and a choreography with posing and performing social actors. Thirdly that photos are multiple and open-ended in terms of motifs and interpretation. And finally we argue that symmetry among words and pictures is needed in order to make access to complementary types of knowledge.

### **How to apply achieved knowledge in a context of urban regeneration**

As mentioned in the introduction, results gained by quantitative methods are often easier to apply and translate into specific planning or management initiatives. "80% of the population want more green space, and 50% of these want it for sports" is a simple and useful piece of information, easy to react to for policy makers. Information gained from qualitative – and more so visual – methods is often more evasive: in some ways more precise and concrete – in others more general. And how many people share the feeling?

Qualitative research among residents shows, however, that urban quality is versatile, complex and highly integrated with practises of everyday life and sense of place. The complexity makes it difficult to make clear life style categories to "cater for" in urban planning and especially regeneration. Families with children seem e.g. to have some common preferences with other childrens' families, while they also differ according to urban setting and everyday life practises.

Qualitative knowledge seems to be very good for general knowledge about place attachment. But also this knowledge form is based on dialogue and some of the methods can be applied in public participation.

Visual methods have been used more directly in urban planning and redevelopment. In the redevelopment project in Holmbladsgade photos by children of "ugly places" in the area formed part of the background information (Holmgreen, Hansen & Svensson 1999). In the municipality of Albertslund residents were asked to take photos of good public spaces for the planning process and the municipality of Copenhagen have fostered a publication on urban life qualities (2009), where analyses are illustrated by informants' photos of local places they are fond of.

Such information may be visual and qualitative, but is hardly scientific knowledge – it is pointing out specific spaces in a local area.

Maybe there is a tendency that "good" concepts for urban space are replicated too often. Diversity and complexity is a value that should not be underestimated, and here qualitative methods – and the knowledge gained from them – can enrich planning processes. However, especially visual methods should no be used uncritically: misconception and even manipulation is a danger. Pictures have much potential for releasing tacit knowledge, but they also have limitations. A picture does not say more than a thousands words – it says something else – and must be interpreted in the context and through words.



speaker 19

**KLAR – Kontor for Landskab og Arkitektur**

Henning Stüben and Dorte Børresen (kontor@klar-arkitekter.dk)  
founders of KLAR; Teachers at the Royal Danish Academy of Fine Arts, School of Architecture, Copenhagen, Denmark

**Abstract**

Public space is always exposed to diverse and contentious expectations and identifications.

Instability, negotiation and change are the conditions of urban space in the contemporary city. The design of public space needs to respond to these heterogeneous appropriations and facilitate them. From our point of view, this requires precisely articulated urban landscapes or fields that are open to varying programmatic encounters. We try to design what we call hybrid forums that allow transformation over time and negotiation between different groups and interests, within a specifically designed frame-work.

As a part of Copenhagen's ambition to strengthen the city center (the so called metropolitan zone), KLAR and JDS are currently redesigning the harbor-front along the Northern part of Kalvebod Brygge. Being one of Copenhagen's most central waterfront locations, the project will meet diverse and competing expectations and claims. Our proposal is a modern interpretation of the quay, an urban activity zone, designed as a dynamic new boardwalk with public events along and on the water. The project allows multiple interpretations of the public realm, with a scope of water-front attractions that try to embrace urban diversity and instability

speaker 20

**"Soft" travel modes in Copenhagen- Existing data, status, and potentials for the application of tracking technologies**

Thomas Sick Nielsen ([sick@life.ku.dk](mailto:sick@life.ku.dk))

Senior Research Fellow, Ph.D.

Department of Urban and Landscape studies

Danish Centre for Forest, Landscape and Planning

University of Copenhagen, Faculty of Life Science

Denmark

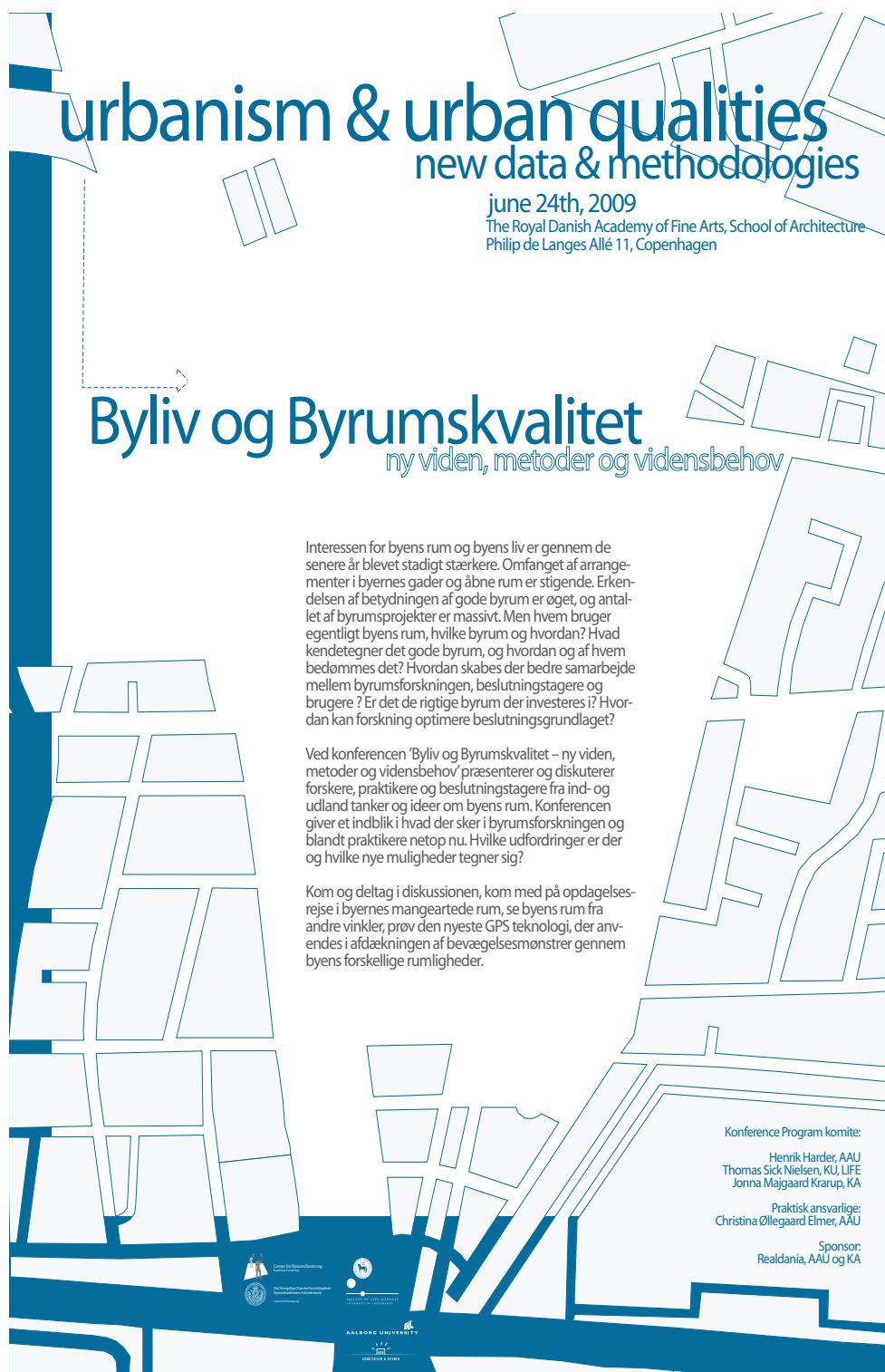
**Short Biography**

Thomas Sick Nielsen is employed as Senior Researcher at the University of Copenhagen, Danish Centre for Forest Landscape and Planning. Main research areas are Urban development, interaction systems, spatial behaviour, and the interrelations between spatial behavior and urban form. Currently Thomas takes part in the Center for Strategic Urban Research ([www.byforskning.dk](http://www.byforskning.dk)), the EC project PLUREL ([www.plurel.net](http://www.plurel.net)), and 'Drivers and Limits' - a project funded by the Danish Strategic Research Council.

**Abstract**

Evidence on the use of bicycling and walking for travel in Copenhagen, and its development over time is presented. Available data consists of traffic counts on selected locations, in some cases allowing a representation of the development through decades; as well as the national travel surveys mode, purpose, as well as origin and destination of trips are registered. The potential for the application of tracking technologies to analyze bicycling, and develop plans and tools to promote CO2-neutral travel is discussed.

Additional material  
Conference poster



# urbanism & urban qualities

## new data & methodologies

june 24th, 2009  
The Royal Danish Academy of Fine Arts, School of Architecture  
Philip de Langes Allé 11, Copenhagen

# Byliv og Byrumskvalitet

ny viden, metoder og vidensbehov

Interessen for byens rum og byens liv er gennem de senere år blevet stadigt stærkere. Omfanget af arrangementer i byernes gader og åbne rum er stigende. Erkendelsen af betydningen af gode byrum er øget, og antallet af byrumsprojekter er massivt. Men hvem bruger egentligt byens rum, hvilke byrum og hvordan? Hvad kendetegner det gode byrum, og hvordan og af hvem bedømmes det? Hvordan skabes der bedre samarbejde mellem byrumsforskningen, beslutningstagere og brugere? Er det de rigtige byrum der investeres i? Hvordan kan forskning optimere beslutningsgrundlaget?

Ved konferencen 'Byliv og Byrumskvalitet' – ny viden, metoder og vidensbehov/ præsenterer og diskuterer forskere, praktikere og beslutningstagere fra ind- og udland tanker og ideer om byens rum. Konferencen giver et indblik i hvad der sker i byrumsforskningen og blandt praktikere netop nu. Hvilke udfordringer er der og hvilke nye muligheder tegner sig?

Kom og deltag i diskussionen, kom med på opdagelsesrejse i byernes mangeartede rum, se byens rum fra andre vinkler, prøv den nyeste GPS teknologi, der anvendes i afdækningen af bevægelsesmønstre gennem byens forskellige rumligheder.

Konference Program komite:  
Henrik Harder, AAU  
Thomas Sick Nielsen, KU, LIFE  
Jonna Majgaard Krarup, KA

Praktisk ansvarlige:  
Christina Øllegaard Elmer, AAU

Sponsor:  
Realdania, AAU og KA

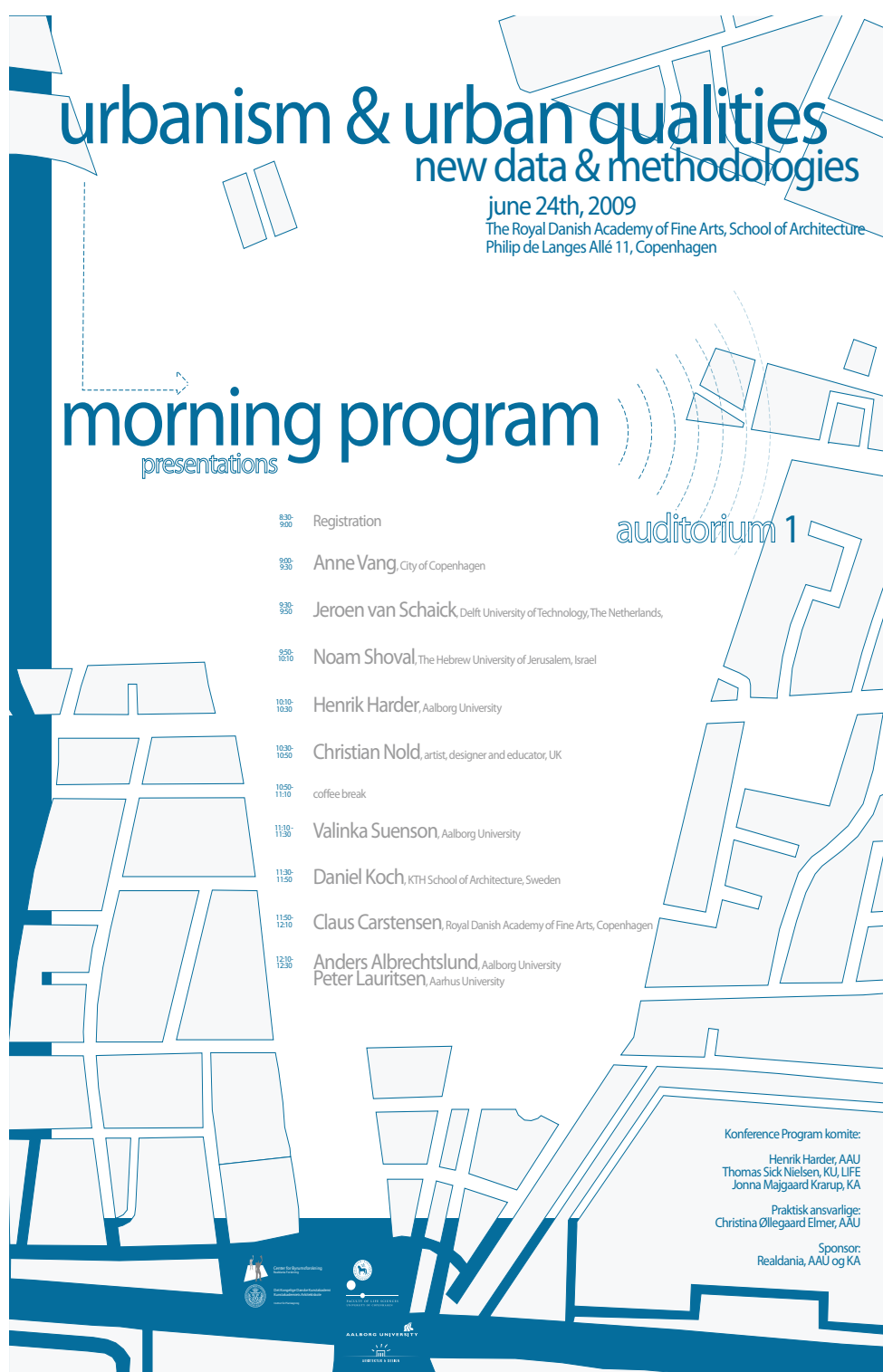


AARHUS UNIVERSITY  
Center for Urban Research and Planning  
Danish Institute for Urban Research



Additional material

Morning program



# urbanism & urban qualities

## new data & methodologies

june 24th, 2009  
The Royal Danish Academy of Fine Arts, School of Architecture  
Philip de Langes Allé 11, Copenhagen

# morning program

presentations


auditorium 1

8:30-9:00	Registration
9:00-9:30	Anne Vang, City of Copenhagen
9:30-9:50	Jeroen van Schaick, Delft University of Technology, The Netherlands
9:50-10:10	Noam Shoval, The Hebrew University of Jerusalem, Israel
10:10-10:30	Henrik Harder, Aalborg University
10:30-10:50	Christian Nold, artist, designer and educator, UK
10:50-11:10	coffee break
11:10-11:30	Valinka Suenson, Aalborg University
11:30-11:50	Daniel Koch, KTH School of Architecture, Sweden
11:50-12:10	Claus Carstensen, Royal Danish Academy of Fine Arts, Copenhagen
12:30-12:50	Anders Albrechtslund, Aalborg University Peter Lauritsen, Aarhus University

Konference Program komite:  
Henrik Harder, AAU  
Thomas Sick Nielsen, KU, LIFE  
Jonna Majgaard Krarup, KA

Praktisk ansvarlige:  
Christina Øllegaard Elmer, AAU

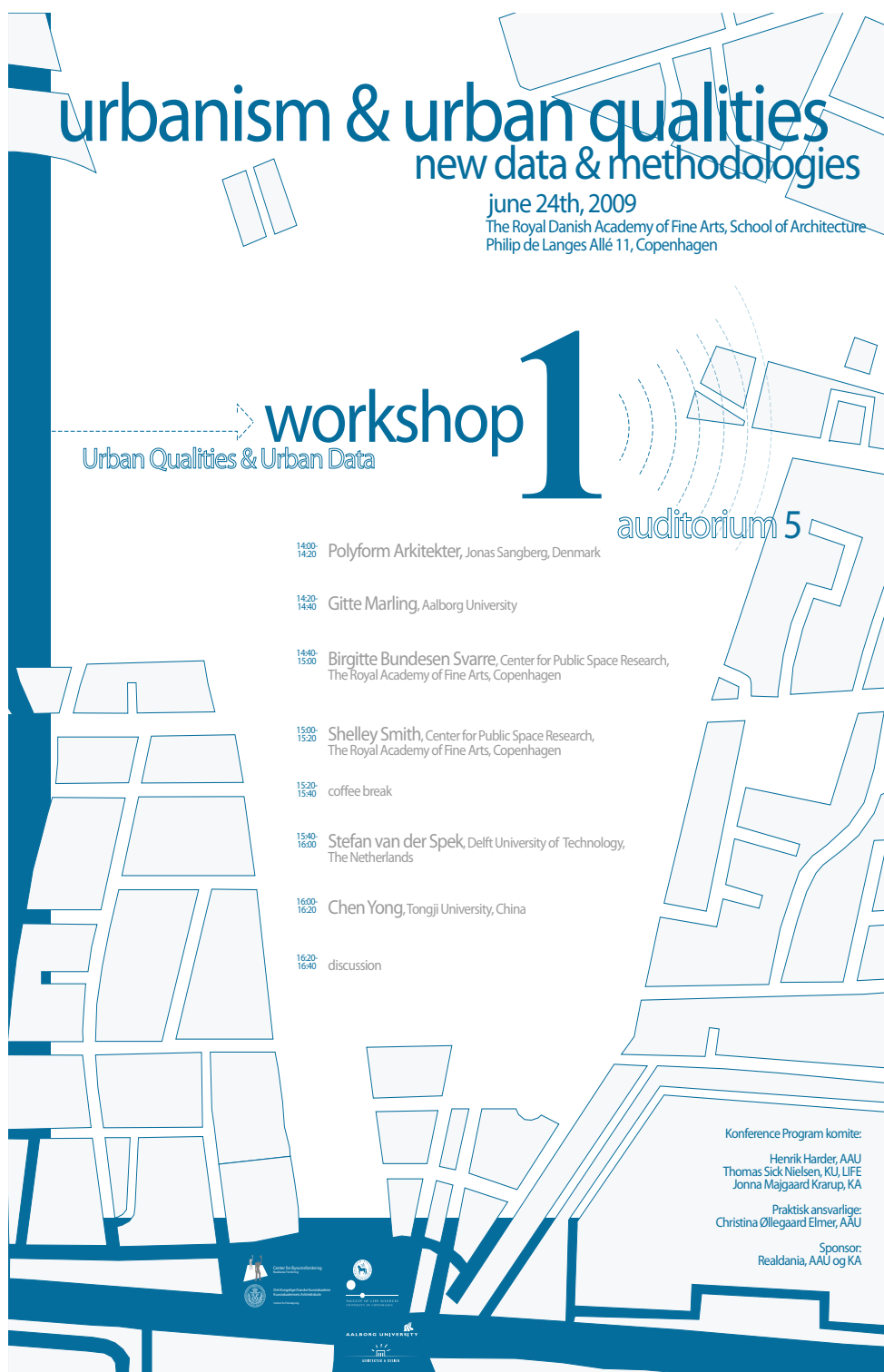
Sponsor:  
Realдания, AAU og KA



AALBORG UNIVERSITY  
AARHUS UNIVERSITY  
KULTURMINISTERIET

Additional material

## Workshop 1



# urbanism & urban qualities

## new data & methodologies

june 24th, 2009  
The Royal Danish Academy of Fine Arts, School of Architecture  
Philip de Langes Allé 11, Copenhagen

### workshop 1

Urban Qualities & Urban Data

auditorium 5

14:00-14:20 Polyform Arkitekter, Jonas Sangberg, Denmark

14:20-14:40 Gitte Marling, Aalborg University

14:40-15:00 Birgitte Bundesen Svarre, Center for Public Space Research, The Royal Academy of Fine Arts, Copenhagen

15:00-15:20 Shelley Smith, Center for Public Space Research, The Royal Academy of Fine Arts, Copenhagen

15:20-15:40 coffee break

15:40-16:00 Stefan van der Spek, Delft University of Technology, The Netherlands


16:00-16:20 Chen Yong, Tongji University, China

16:20-16:40 discussion

Konference Program komite:  
Henrik Harder, AAU  
Thomas Sick Nielsen, KU, LIFE  
Jonna Majgaard Krarup, KA

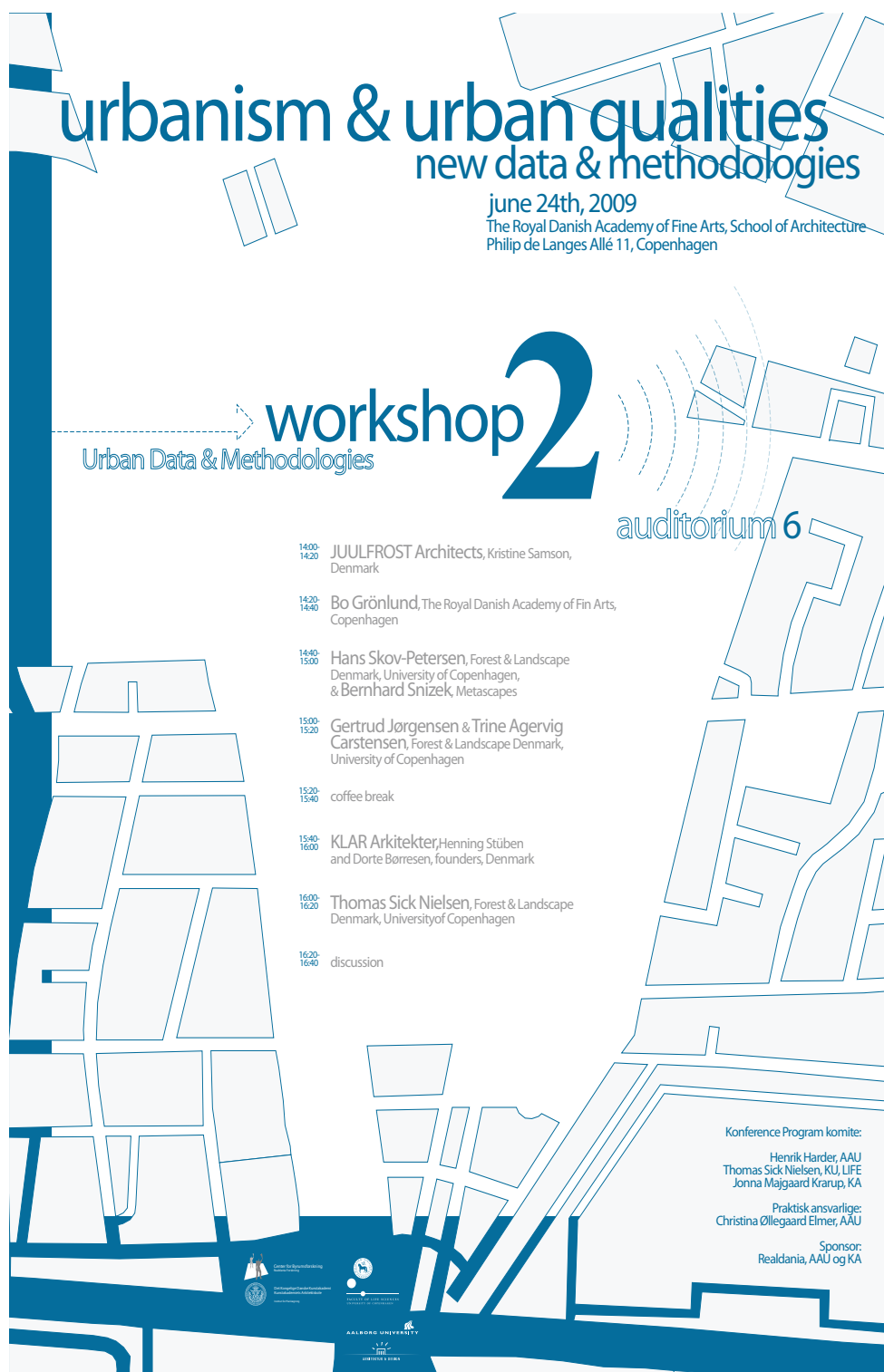
Praktisk ansvarlige:  
Christina Øllegaard Elmer, AAU

Sponsor:  
Realдания, AAU og KA

  
AALBORG UNIVERSITY  
THE ROYAL DANISH ACADEMY OF FINE ARTS  
SCHOOL OF ARCHITECTURE

Additional material

Workshop 1



# urbanism & urban qualities

## new data & methodologies

june 24th, 2009  
The Royal Danish Academy of Fine Arts, School of Architecture  
Philip de Langes Allé 11, Copenhagen

### workshop 2

Urban Data & Methodologies

auditorium 6

1400-1420 JUULFROST Architects, Kristine Samson, Denmark

1420-1440 Bo Grönlund, The Royal Danish Academy of Fine Arts, Copenhagen

1440-1500 Hans Skov-Petersen, Forest & Landscape Denmark, University of Copenhagen, & Bernhard Snizek, Metascapes

1500-1520 Gertrud Jørgensen & Trine Agervig Carstensen, Forest & Landscape Denmark, University of Copenhagen

1520-1540 coffee break

1540-1600 KLAR Arkitekter, Henning Stüben and Dorte Borresen, founders, Denmark


1600-1620 Thomas Sick Nielsen, Forest & Landscape Denmark, University of Copenhagen

1620-1640 discussion

Konference Program komite:  
Henrik Harder, AAU  
Thomas Sick Nielsen, KU, LIFE  
Jonna Majgaard Krarup, KA

Praktisk ansvarlige:  
Christina Øllegaard Elmer, AAU

Sponsor:  
Realдания, AAU og KA

  
AARHUS UNIVERSITY  
DANISH PLANNING INSTITUTE  
DANISH INSTITUTE OF URBAN RESEARCH





FACULTY OF LIFE SCIENCES  
UNIVERSITY OF COPENHAGEN



  
**AALBORG UNIVERSITY**



ARKITEKTUR & DESIGN



Det Kongelige Danske Kunstakademi  
Kunstakademiets Arkitektskole  
Institut for Planlægning



Center for Byrumsforskning  
Realdania Forskning